NATIONAL PETROLEUM NEWS

Col. Stewart Remains S. O. Indiana Head; Silent on Rockefeller Demand

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JOHN D. ROCKEFELLER JR.
Controlling 1,339,920 shares of Standard Oil Co. of Indiana stock. He asked Col. Stewart, chairman of its board, to resign

Underwood & Underwood, N. Y.

COL. ROBERT W. STEWART
Chairman of the board of directors, Standard Oil Co. of Indiana. He refuses to say what action he will take in answer to Rockefeller's demand

CLEVELAND, May 14

COL. ROBERT W. STEWART is retaining the chairmanship of the Standard Oil Co. of Indiana. He has made no move, so far as the public or minor stockholders can learn, to acquiesce to the demand of John D. Rockefeller, Jr., April 27 that he resign because he received $759,500 of the Continental Trading Co. bonds.

Col. Stewart only issued a statement in which he said he would say nothing concerning the controversy between him and the younger Rockefeller pending the contempt of the senate action against him. He goes on trial on that charge in a District of Columbia court May 21.

A District of Columbia grand jury inquiry is being made into whether he committed perjury in testimony before the senate public lands committee Feb. 2 and 3 when he said he had not profited a penny from the Continental Trading Co. deal. He admitted to this committee April 24 that he had received the Continental bonds but added that he had placed them in "trust" with a tax expert of his office, thereby contending that he had not personally profited.

It is understood that Col. Stewart has discussed the Continental deal fully with his board of directors but President E. G. Seubert of the Indiana company and other directors are silent. The statement Col. Stewart issued May 11 follows:

"Referring to the statement of John D. Rockefeller, Jr., appearing in the newspapers under date of May 9, 1928:

"Any communication from any stockholder of the company is entitled to and shall receive from me the most careful consideration. The proceedings now pending in Washington make it untimely for me to make any statements to the public at this time, much as I might desire so to do."

Mr. Rockefeller revealed his request for Col. Stewart's resignation was in this statement issued May 9 in New York:

"On April 27 I wrote Col. Robert W. Stewart, chairman of the board of the Standard Oil Company of Indiana, the following letter:

"'Dear Col. Stewart:

"'Your recent testimony before the senate committee leaves me no alternative other than to ask you to make good the promise you voluntarily gave me, some weeks ago, that you would resign at my request. That request I now make.'

"On April 30 I wrote again as follows:

"'Dear Col. Stewart:

"'Mr. Seubert has told me that in the course of the conversation you had with him after the receipt of my letter to you of the 27th inst., mention was made as to the possibility of a special meeting of the stockholders of the Standard Oil Company of Indiana being called, so that they might all have an opportunity to express themselves in regard to your suggested resignation.

"'If this plan is to be followed, I have no doubt that you will have the thirty day call issued at once and that you will wish to write me that this has been done.'

"I have taken the above action because I have lost confidence in Col. Stewart's leadership and believe that the interests of the Standard Oil Company of Indiana can now best be served by his resigning. This action should not be construed as a pre-judgment on my part as to the issues involved in the legal proceedings now pending."

So far no call has been issued for a meeting of stockholders although directors of the company met May 7 when the regular quarterly dividend was declared. There is doubt among persons who have followed the Stewart-Rockefeller controversy closely as to what action if any can be taken to force Col. Stewart to resign, it is said.

Col. Stewart was elected a director of the Indiana company at its annual meeting March 1 for a term of one year and subsequently was re-elected chairman of the board. He did not receive the Rockefeller vote although the Rockefeller stock was voted for all other members of the board.

The Rockefeller stock consists of 1,339,920 shares of the company's outstanding 9,233,540 shares, or slightly less than 15 per cent. John D. Rockefeller, Jr., owns only 140 shares in his own name, he testified before the senate committee some weeks ago.

The profits of the Continental Trading Co. in the purchase of Mexia, Texas, crude oil from the Col. A. E. Humphreys interests at $1.50 a barrel and the sale of the oil to the Sinclair Crude Oil Purchasing Co. and Prairie Oil & Gas Co. at $1.75 a barrel, was split four ways, the senate committee

has ascertained in its investigation which began as an inquiry into the leasing of the Teapot Dome petroleum reserve in Wyoming to Harry F. Sinclair's Mammoth Oil Co.

Besides the $759,500 bonds which were turned over to Col. Stewart, like amounts were given Sinclair, James E. O'Neil, then president of the Prairie, and H. M. Blackmer, chairman of the Midwest Refining Co., a Standard of Indiana subsidiary. The Standard of Indiana and the Sinclair Consolidated Oil Corp. are joint owners of the Sinclair Crude Oil Purchasing Co. and the Sinclair Pipe Line Co.

O'Neil in 1925 turned back his bonds or their equivalent to the Prairie. Col. Stewart held his in secret trust for the Standard of Indiana and the purchasing company. Blackmer lately attempted to turn back his bonds to the Midwest, it is said, but was turned down on the grounds that the bonds did not belong to it.

It is said in Washington that an effort will be made by the United States government to demand the Continental profits as penalty for evaded income taxes. Although the Continental bonds were Liberty 3½s and not taxable the government requires that report be made on all income from non-taxable securities.

The foundation question is as to the ownership of the bonds. If the organizers of the Continental company admit ownership they will be subject to the most rigorous penalties, among which are possible terms of imprisonment. If the organizers contend that they were acting as officers of the companies to which the bonds have been tendered, the question arises as to whether the acts of the organizers were within the scope of their powers. If within the scope of their employment, then the companies become liable for the acts of their officers.

The income tax angle has been touched upon several times by senate investigators but nothing came of it because the senate committee seemed more interested in trying to link the bonds with the leasing of Teapot Dome.

Mr. Rockefeller's publication of his request for Col. Stewart's resignation came on the heels of a speech made by Judge Edwin F. Parker, chairman of the board of the Chamber of Commerce of the United States. The judge told the sixteenth annual convention of that organization in Washington that business had to purge itself of those "pirates who flaunted the law, defiled business, debauched public officials and suppressed the truth about deals the public was entitled to know about." He said it was time for the legal profession to think about the disturbing evidence of the "public be damned" policy of some of its members.

Senator Thomas F. Walsh, the "prosecutor" of the Teapot investigation, said the speech of Judge Parker and the demand for Col. Stewart's resignation were "gratifying evidence that the business world is waking up to the enormity of the offenses revealed by the committee. It is reassuring to know that the public is not indifferent to such transgressions as those disclosed. The criminal trials might have been different if the public conscience had been earlier aroused by such expressions as those referred to."

Senator Nye, chairman of the public lands committee, said he was happy if the work of the committee had caused the inauguration of a program for a "clean-up in the oil world."

Col. Stewart will go on trial in Washington May 21 for refusing to answer questions when they were put by the committee in February. He answered them at his last appearance, April 24, and thereby caused the senate to release him from arrest it had caused in February and the order for him to appear before the bar of the senate. That was done because George W. Wickersham, the senate's legal adviser, held that the senate had only coercive power not punitive power. That is, it could do something to persuade a witness to answer some time but not to punish him for having refused to answer at a particular time.

John D. Rockefeller, Jr., was given an ovation May 10 when he attended the annual banquet of the Chamber of Commerce in Washington, at which Owen D. Young, chairman of the General Electric Co., presided. Mr. Young introduced Mr. Rockefeller as follows:

"Conservator and distributor of a great estate; exponent and defender of high standards in business and elsewhere; promoter and supporter of worthy educational and charitable enterprises in every country in the world."

Mr. Rockefeller was cheered for five minutes but said nothing publicly or to the press about the Stewart controversy. He told reporters if he had anything to say it would be in writing but he issued no statement.

The annual meeting of the Sinclair Consolidated Oil Corp. will be held May 16. An active canvass for proxies has been made by Earl W. Sinclair, president of the corporation and brother of Harry F. Sinclair, J. Fletcher Farrell, and Joseph M. Cudahy. They have solicited permission to vote the stock held by brokerage houses, according to New York advices.

There has been a heavy buying movement in Sinclair stock in the last month but this has been credited to bankers who wish to merge this company with another oil company. The Sinclairs do not own control of the corporation but Harry F. is the largest stockholder. Another large holder is said to be H. P. Whitney, a director.

Harry F. Sinclair's position with his company in regard to the Continental deal, is much the same as the position of Col. Stewart in relation to his company, except that Sinclair disposed of most or all of his bonds. Of Sinclair's share, $233,000 was given Albert B. Fall, former secretary of the interior, and $260,000 to help extinguish the deficit of the 1920 Republican campaign.

Wall Street has been speculating the last week as to whether control of the Sinclair Consolidated Oil Corp. might pass from Harry F. Sinclair's hands. That speculation has resulted in unusual interest in the May 16 meeting.

Coming Meetings

National Oil Scouts of America, Amarillo, Tex., May 21, 22.

Natural Gasoline Association of America, Hotel Mayo, Tulsa, May 22, 23, 24.

Automobile Associated Trades of Illinois, Hotel Morrison, Chicago, May 24, 25.

Western Petroleum Refiners Association, technical division, Shreveport, June 4, 5.

American Petroleum Institute division of development and production engineering, Broadmoor Hotel, Colorado Springs, Colo., June 12, 13, 14, 15.

West Virigina Oil Marketers Association, Kanawha Hotel, Charleston, W. Va., June 14, 15.

American Oil Men's Association, Hotel Statler, Detroit, Mich., Oct. 16, 17, 18.

International Petroleum Exposition, Tulsa, Oct. 20 to 29.

Petroleum Refiners Division, National Association of Credit Men, Chicago, Nov. 4, 5, 6.

Exposition Management Plans Improvements

TULSA, May 12.—The committee on building and grounds of the International Petroleum Exposition is obtaining estimates on a large improvement program planned for completion before the fall show. Plans contemplate the building of concrete walks through the grounds and the construction of steel canopies over the walks connecting the entrances of all buildings and extending to outside exhibit spaces.

Other plans include the installation of louvers in exhibit buildings, enclosing the restaurant, extending the car line into the grounds, installation of a new sewerage system and surfacing of exhibitors' parking space. The management is planning to spend about $20,000 on improvements of the plant.

Manager J. Burr Gibbons is pleased with early space contracts. Out of last year's exhibitors a large proportion of those who have replied to the first questionnaire have reserved space. Only 6 have reported they will not exhibit.

Prominent figures in the natural gas industry. Left to right are: E. S. McKay, Oklahoma Natural Gas Corp., Oklahoma City; H. J. Hoover, Cincinnati; John M. Garard, Columbus, O.; A. W. Leonard, Devonian Oil Co., Tulsa; J. D. Creveling, Cities Service Co., New York, and John B. Corrin, Hope Natural Gas Co., Pittsburgh

Gas Men Meeting in Region of Great Expansion Talk Conservation

DALLAS, May 12

By Lawrence E. Smith
N. P. N. STAFF WRITER

MEETING in Dallas and drawing its attendance largely from the southwest, where the natural gas industry is in an era of huge development, the natural gas department of the American Gas Association held convention here four days, May 7 to 10. Conservation of natural gas as an aid to oil production was discussed.

This meeting, in most respects, resembled the meetings of the old Natural Gas Association of America before it merged with the A.G.A., an organization founded by the manufactured gas people.

There are those who mourn the passing of the old order, who have not yet become accustomed to the plan of being merely a division of the A.G.A. The difference, however, is not so noticeable when the division meets in the southwest, for only a few of the manufactured gas companies are represented and the old crowd is on hand.

In hotel lobby gatherings and in all private conversations, the principal theme was the large movements under way in the development and utilization of natural gas in the Mid-Continent and the southwest. The work done the last year has been gigantic; that under way and planned is equally as great.

The Panhandle territory of Texas has been the focal point for many of the new pipe lines. There is the large line laid by the Cities Service interests from the Amarillo district to Kansas with work proceeding to loop existing lines and give the Kansas City district a greater supply.

There is the major trunk line from the Panhandle district to Pueblo and Denver, nearing completion. This is owned by the Colorado Interstate Gas Co., whose stock is owned by the Standard Oil Co. of New Jersey, the Prairie Oil & Gas Co. and the Cities Service Co.

There are three smaller lines transporting gas from the Amarillo district to distant points and two more major projects are in the stage of organization, one having obtained industrial consumer franchises in the two Kansas Cities and in Topeka. The other is planned to strike into the Omaha district.

There has been considerable construction in other fields of the southwest and more is contemplated. The addition to natural gas reserves has been great the last year.

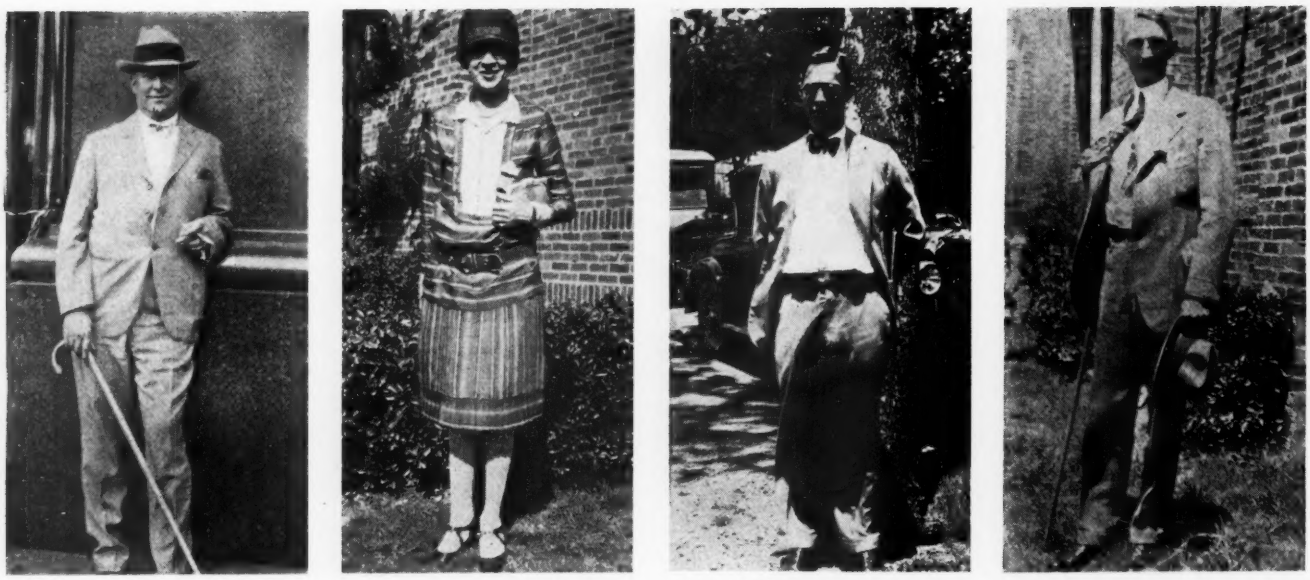
With all this, the natural gas industry is feeling its oats and the opinion was freely and frequently expressed that the association—at least in this part of the country—should stand on its own feet.

The natural gas industry of the Mid-Continent and the southwest has little in common with the manufactured gas industry; it is, in fact, more nearly allied with the oil industry. Problems of leasing, development and transportation are similar and in most respects identical.

Whether a new association will arise is problematical. No such move has been proposed formally, yet there is considerable sentiment for it. The expression was heard several times that the natural gas industry of the southwest would do better to ally itself with the Natural Gasoline Association of America.

Contrasted to this viewpoint was the statement of N. C. McGowen, Palmer Corp., Shreveport, chairman of the division. Mr. McGowen, in his address, said the merger with the A.G.A. was one of the most progressive of actions.

"That the joining of the two associations has already been productive of beneficial results is evidenced in many ways," he said. "To the splendid personnel of our main technical and research committee have been added the chairman and vice-chairman of the association's technical section. This gives us a direct tie-in with all the technical work being done in the manufactured branch of our industry as well as a unification of effort in all lines of technical endeavor. In addition to this more than 100 natural gas men have been added to association committees whose functions cover accounting, technical, industrial, commercial, publicity and advertising activities, as well as such



More attendants at the American Gas Association convention, left to right: James H. Dye, manager of the Charleston producing division of the Pure Oil Co.; Mrs. E. La Cour, business manager of Natural Gas official publication of the association; E. O. Bennett, chief petroleum engineer, Marland Production Co.; Thomas R. Weymouth new president of the Oklahoma Natural Gas Corp.

important general problems as accident prevention, scientific and marketing research, industrial gas research, national advertising, rate fundamentals, rate structure, new heating problems, laboratory management, mixed gas research, taxation, depreciation and association finance."

With the merging of the two associations, an auxiliary to the old Natural Gas Association of America disbanded. This was the Natural Gas Supply Men's Association. A new supply group, the Natural Gasoline Supply Men's Association recently was formed, a number of equipment companies who were members of the old organization being founders of the new one.

Chairman McGowen reported that the supply men turned over to the A.G.A. its surplus funds, $17,000. The supply men recommended that the money be used for educational work under the direction of the managing committee of the natural gas department.

E. O. Bennett, chief petroleum engineer, Marland Production Co., read a paper entitled, "Increase in the Use of Natural Gas for Oil Recovery and Its Economic Effect on the Natural Gas Industry." In it was brought to the attention of the gas men a subject that has had unusually wide discussion in the oil industry.

Mr. Bennett explained the various physical factors affecting the utilization of gas in recovering oil. He set up as the goal of the oil producer: "Keep all gas originally in solution in the oil as long as possible, permitting the least amount to escape and when any does escape make it do its maximum amount of work in moving the oil to the well."

"Controlling oil production so that maximum efficiency, regarding gas dissipation is reached, will have a decided effect upon the natural gas merchant and the gasoline manufacturer," Mr. Bennett said.

"Instead of having to install equipment to take care of large volumes during the early life of a field and very small amounts later, they can each put in average capacity equipment with assurance of longer life in production. This will yield much greater returns on the initial investment what a stable source of supply to meet market conditions over a longer period. A uniform rate of production will also have a tendency to stabilize the price of the products."

The measure of efficiency, Mr. Bennett said, is the ratio of gas to oil produced and the most economical production of both oil and gas will be obtained when the amount of gas produced approximates that originally in solution in the oil reservoir.

The only way to determine how much gas was originally in solution is by taking a sample of the mixture as it exists in the bottom of the well. A thiefing device has been designed which permits the obtaining of a true sample from the bottom or any other point in the well. The same device records the true pressure and temperature at the point where the sample is taken. When the sample is brought to the surface the amount of gas contained in it is drawn off and metered, then the volume of oil is measured. The condensible gasoline in the gas can be extracted by using activated charcoal.

The ability to obtain such data on the virgin state of the oil promises to be of great benefit to the operator who would make the gas in solution do its most effective work.

Mr. Bennett outlined some of the factors involved in repressuring early in the life of an oil field, urging the return of gas to the producing formation as early as practicable instead of waiting until the sand is robbed of its energy and then attempting to restore pressure.

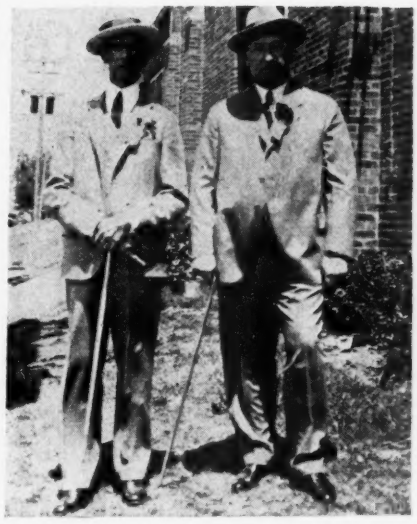
"Since this method of handling production is new and but little data are available the exact time to start repressuring and the pressures which should be maintained, have not yet been determined," he said. "Indications are, however, that the earlier repressuring operations are started the greater will be the economic gain. Data observed where early repressuring has been practised indicate that where the repressuring is started during the first 5 per cent of the normal life of a field and carefully carried out, that the production during the next 15 per cent of the normal life of the field will approximately equal that which would ordinarily be produced during the entire life of the field, and that the ultimate production will be from 200 to 300 per cent more than under conditions where gas is not conserved.

"Repressuring during the period of production is at present being carried out with pressures up to 1,500 pounds and excellent results are being obtained. One of the greatest benefits of early repressure operations is the retarding of edge water encroachment and holding down bottom water coning, both of which will shorten the life of a producing formation by trapping off oil. Wells making water have been dried up when put under pressure control."

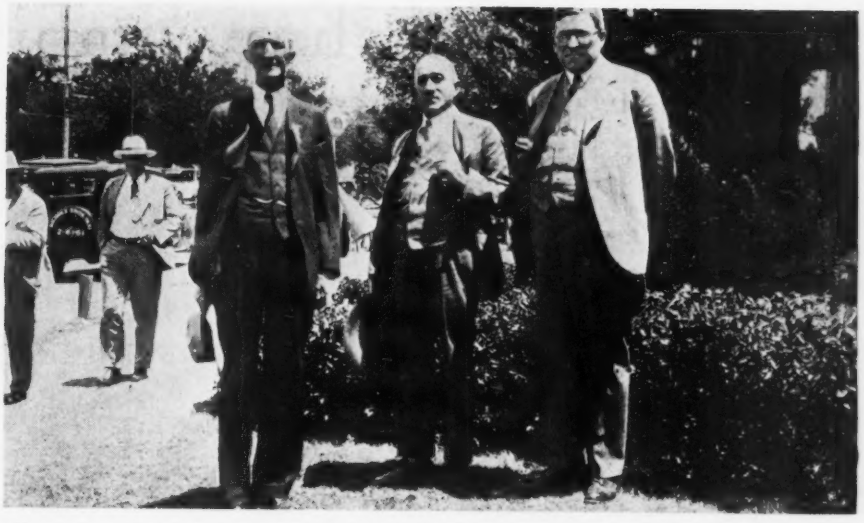
A thought by Mr. Bennett for the natural gasoline manufacturer:

"If the large volumes of gas produced during the flush life of important pools are used to manufacture gasoline, an overproduction of this commodity may exist with a resultant low price. In many instances the price is so low and the life of the field so short the initial investment cannot be paid out.

"In certain areas it has been shown that the oil producer can earn much



On the left is H. E. Smith, manager of the St. Louis office of the Wheeling Steel Corp.; on the right none other than Capt. Burt S. Shafer, manager of the oil country tubular goods division of the same company. He lives in Dallas



Three men widely known in natural gas industry are, left to right: O. K. Shannon, president, Fort Worth Gas Co., P. H. DeJordy, Fort Smith, Ark., and C. W. Sears, president, Larutan Fuel Corp., Wichita, Kans. Mr. Sears was one of the founders of the old Natural Gas Association of America

larger profits by returning wet gas to the producing formation than is possible by selling his gas to the gasoline plants and obtaining extra revenue from royalty on the gasoline produced and sold. The value of the wet gas recycled through the formation may be as much as 300 per cent more than the value of his interest in the gasoline it would produce.

"When oil has been produced down to the economic limit gas can then be used for gasoline and upon a continued recycling program more than the usual normal amount of gasoline can be recovered. The gasoline will also be more stable and of a better quality. Gasoline plants installed at this time can be properly designed as to size and a minimum amount of equipment used. Plants installed under this program will yield larger returns on capital invested.

"Where compressor plants are installed to return gas to the formation in the early life of a field they should be designed so that they can be used in connection with gasoline absorption plants with a minimum change in equipment. After recycling for gasoline extraction the same plants can be used for booster stations to market the gas that remains. Vacuum should never be applied to any property until all the oil possible has been removed and it should only be used to produce gas.

"Results of tests conducted the last two years show that gasoline vapors carried by wet gas offer the greatest possible scrubbing action for removing oil from sand grains in a producing formation. With such a scrubbing action greater recoveries will be made and the gasoline used for this purpose will be recovered with the oil as an increase in gravity."

The distinction made by Mr. Bennett in commenting on the value of gas as oil-moving energy was that casinghead gas and not dry gas not associated with oil was the substance which should be utilized for producing oil.

Field methods of minimizing gas waste vary. One point to be considered said Mr. Bennett is that oil should not be taken from a well at a rate greater than it can enter the well from the formation. To do so is to create an oil drained area around the well which will facilitate the escape of gas which will not expend its energy in moving oil and will cause a rapid decline in pressure.

Back pressure should be held on the producing formation in naturally flowing wells, Mr. Bennett said. This compels the gas to move against the oil in the sand, promoting greater recovery.

The gas lift, properly installed and handled, is one of the best means of controlling energy loss and prolonging the active life of a well, Mr. Bennett said, referring to criticisms that have grown out of the overproduction of the past year, partly occasioned by the gas lift. Mr. Bennett said that gas lift could be operated in two ways: To get out the most oil in the least time, and second, to subsidize natural conditions and produce under pressure control, making use of available gas to assist where natural energy is insufficient to make the well flow.

In conclusion Mr. Bennett said: "It can be stated that to get the greatest return from money invested in oil production, the utmost attention should be directed toward utilizing the total amount of potential energy contained in the gas and after this is done find a suitable use for it so that its calorific energy can be efficiently used. Casinghead and residue gas should be used whenever it can supplant natural gas that can be shut in."

Of interest to pipe line men was the address of W. G. Hagen, of the East Ohio Gas Co., Cleveland, who outlined some of the fundamentals of pipe corrosion and protection. Opinion on protective measures is yet unconsolidated, said Mr. Hagen. Some companies have made considerable progress, others have spent considerable money and have abandoned effort while others have stood by waiting for something definite and generally applicable to be worked out.

"All companies, however, recognize the advisability of using some method of protecting their investment, and indications point to a more intensive study and at least a partial solution of this problem in the near future," Mr. Hagen said.

Gas Men Pledge Support To Tulsa Exposition

TULSA, May 12.—The International Petroleum Exposition was indorsed in a resolution adopted by the natural gas department of the American Gas Association in convention at Dallas.

The resolution, introduced by Frank Chase, of the Lone Star Gas Co., declared that as a workshop, laboratory, and display room the exposition has been "of inestimable value to the scientific, technical and educational advancement of the world's second largest industry," and that the aims and purposes of the exposition are in harmony with those of the gas association.

The resolution pledged the moral support of the gas association to the exposition, which will be held in Tulsa next fall.

General Manager J. Burr Gibbons said 60 companies had said they would exhibit and that five or more reservations came in each day.

Natural Gasoline Stabilizer Patents Held Invalid in Second Case

CLEVELAND, May 14 NATURAL gasoline stabilizer patents of the Carbide & Chemicals Corp. are held invalid in an opinion handed down May 12 by Judge Hugh M. Morris in federal court in Wilmington, Del.

The opinion dismisses a suit brought by that company against the Phillips Petroleum Co., Bartlesville, Okla., charging infringement of its patent rights.

This case is the second to be decided within a few months setting aside patents of the Carbide & Chemical company, which they announced covered both the process used generally by the natural gasoline industry in manufacturing a stable natural gasoline product, and the stable product itself.

Last Aug. 4 Judge Hutcheson, in federal court in Houston, Texas, found that the patents were invalid in a case brought by the Carbide & Chemicals Corp. against the Texas Co.

It was generally regarded that the holding invalid of these patents would save the natural gasoline industry generally from paying millions in royalties to the Carbide corporation, since practically all important companies are using the principles of rectification claimed in its patents.

In the suit against Phillips Petroleum Co. infringement was charged of 15 claims in three patents, one granted to Jan Heinrich Christoph De Brey, of Holland, an employe of the Royal Dutch Shell, and bought by the Carbide & Chemicals Corp. from that company; and two granted to Harold E. Thompson, a Carbide & Chemicals Corp. employe.

Due to the general interest in the subject, the main portion of the opinion of Judge Morris, handed down May 12, is herewith given in full, only his general and introductory remarks on the development of the natural gasoline industry being omitted.

Text of Judge Morris' Opinion

THE basic question touching the validity of the process claims is whether the disclosure of either DeBrey or Thompson is restricted to rectification merely, a highly developed process in many analogous arts, or whether there is to be found, in one or both, a selection and correlation of temperature and pressure conditions operating upon a new starting material to produce a desired end product that required ingenuity of inventive order. Claim 1 of DeBrey may be first selected for subjection to the test. It is:

> "The process of treating mixtures of hydrocarbons containing a valuable liquid and a worthless gaseous component which comprises rectifying the mixture at a low temperature and at a superatmospheric pressure less than 20 atmospheres and correlating the pressure and the temperature range of rectification in such manner that the maximum temperature is sufficient to expel all the worthless component from the valuable component while the minimum temperature is sufficient to condense a portion of the worthless component whereby the last fractions of valuable component are washed out of the gaseous worthless component by the liquefied worthless portion thus condensed."

Standing alone, unaided by the specification, this claim calls for nothing more than rectification "at a low temperature and at a superatmospheric pressure less than 20 atmospheres," for I find the specified correlation of pressure and temperature is but a statement of the correlation that is the very essence and *sine qua non* of all rectification.

There can be no separation by rectification of a mixture of liquids of different volatility into two components unless the maximum temperature is sufficient to expel therefrom the more volatile components. Moreover, since, by the laws of nature, the vapors passing from the top of the column are those emanating from the liquid on the top plate and in equilibrium with it, it is obvious that liquid fixes and determines the character and composition of the effluent gases.

Hence, it is manifest that if none, or but little, of the valuable fractions of the raw natural gasoline is to be permitted to escape as gas, the liquid on the top plate must consist wholly or largely of condensed worthless components of the initial charging stock. The minimum temperature of the column must inevitably be low enough to condense and liquefy such worthless components.

The specification alters in no particular these facts or principles of rectification which were well known and thoroughly understood long before DeBrey filed his application for the patent in suit. Consequently, invention by DeBrey, if it exists, must be found in the rectification of raw natural gasoline "at a low temperature and at a superatmospheric pressure less than 20 atmospheres."

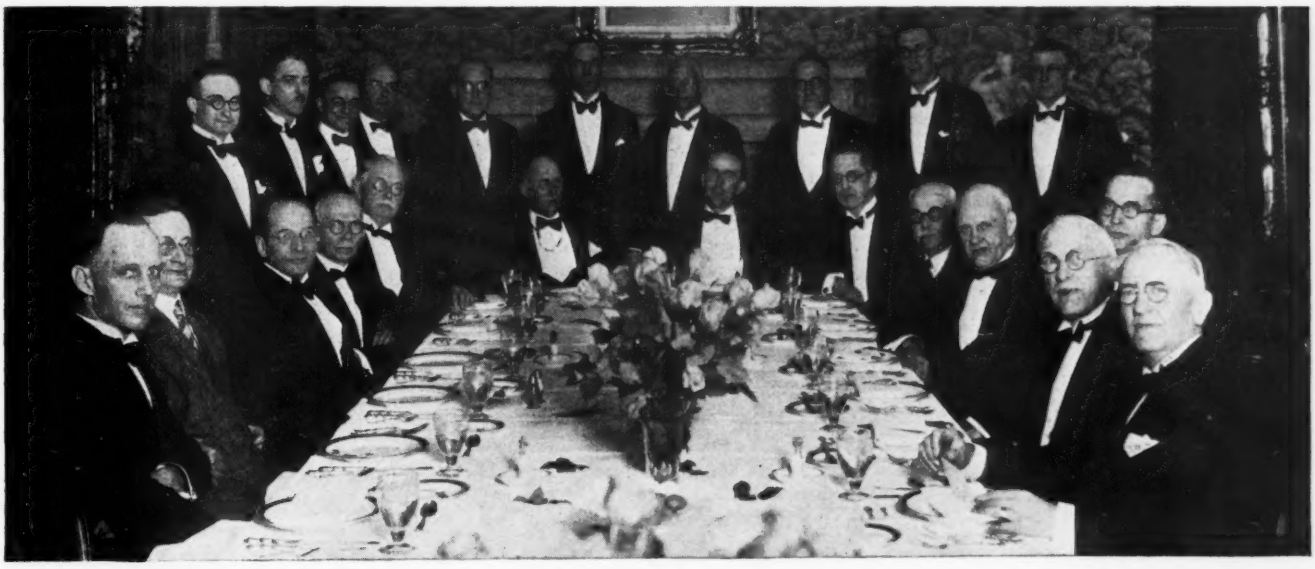
To cause a rectification column properly to function and discharge, the employment of a vacuum pump outside, or a superatmospheric pressure inside the column, has long been known to be essential. Of the two, superatmospheric pressure has been generally preferred. But "superatmospheric pressure less than 20 atmospheres" finds justification in nothing. It is purely arbitrary. It lacks even a theory to support it. This is made clear to the point of demonstration by patent No. 1,465,599, granted to DeBrey on a co-pending application, for there he makes claim to the process of rectifying "raw natural gas at a pressure not less than 20 atmospheres."

Again, rectification "at a low temperature" is vague, indefinite, uncertain and meaningless unless it is intended to call for such temperatures as are essential to drive off the worthless components from the charging stock in the kettle and to condense at the top of the column a part of the more volatile gases so generated. But if that is its meaning it neither elaborates upon nor supplements the guide with respect to temperatures to be employed that is supplied by the physical properties, particularly the boiling or condensing points, of the several components of the raw charging stock, for by those points, which increase with an increase of pressure, the operating temperatures are fixed within a narrow range.

This conclusion finds confirmation of a significant character in DeBrey's patent No. 1,465,599, which calls for a pressure "not less than 20 atmospheres" and omits any reference to operation at a low temperature. Consequently, DeBrey's two patents taken together call for rectification at any temperature and at any pressure and hence rectification generally.

It becomes clear, I think, that DeBrey attempted to cover the whole field of rectification of raw natural gasoline. As a means of doing so he

Retiring President of Standard of Ohio Honored



The occasion of this gathering of officials of the Standard Oil Co. of Ohio was the farewell dinner given by them in honor of A. P. Coombe, retiring president, April 26 at the Hollenden Hotel, Cleveland. All are with the Standard company except those otherwise specified. Left to right, sitting: J. S. Harrison, assistant to vice president, in charge of refineries; C. T. Henderson, publicity director, East Ohio Gas Co.; Isador Grossman, of Holliday, Grossman & McAfee, Cleveland; A. J. Millns, director, in charge of sales; W. H. Foster, vice president; A. P. Coombe, retiring president; W. A. McAfee, general counsel; W. T. Holliday, new president of the Standard Oil Co. of Ohio; B. A. Mathews, second vice president; G. A. Burke, director; C. H. Fowle, special agent at Columbus; and C. A. Sherwood, purchasing agent. Left to right, standing: M. E. Newcomer and Maurice Hanning, both of Holliday, Grossman & McAfee; H. G. Jones, treasurer; George H. Bouscay, special agent at Cincinnati; J. A. Watterson, in charge of service stations; G. G. McIntyre, assistant special agent, Cleveland district; A. B. Nichols; W. A. Vance, special agent at Toledo; P. W. Close, special agent, Cleveland district; G. W. Hanneken, superintendent of Toledo refinery; and G. A. Hoffman

employed two patents rather than one. The division between them is purely arbitrary. Consequently, any selection and correlation of temperature and pressure conditions found in the patent in suit is merely apparent, not real. His claims are wanting in invention.

Thompson's first claim reads thus:—"Process of forming a liquid of predetermined vapor pressure from a mixture of natural gas hydrocarbons, which comprises separating from the mixture a fraction enriched in the heavier hydrocarbons, compressing the fraction in a first compression step to liquefy a portion thereof, compressing the unliquefied vapor to a higher pressure in a second compression step to liquefy a further portion, simultaneously rectifying the two liquefied portions in a single rectifying column, whereby a liquid and a vapor are produced, withdrawing vapor at the top of the column, and adding the withdrawn vapor to the vapors passing to the first compression step."

By the old weathering process "a liquid of predetermined vapor pressure from a mixture of natural gas hydrocarbons" was had. One process of obtaining the liquid to be weathered comprised, as an alternative to the old absorption process, "separating from the mixture a fraction enriched in the heavier hydrocarbons" and condensing the separated fraction by compression and, of course, cooling.

As stated by Thompson in his specification, the compression was usually accomplished in several stages. The liquefied portions were combined and simultaneously weathered to produce a residual liquid, or end product, and a vapor.

Consequently, it is obvious that Thompson's first point of departure lay in the substitution of rectification for weathering. But it is not contended that, had he stopped there, his claim could be sustained for DeBrey, whose application was filed three years before that of Thompson, would alone and without reference to the prior employment of rectification by others in analogous arts, in such event be a bar to a finding of validity.

As a result, patentable novelty, if it exists, must be found in the employment of a particular rectification process. The only step specified in the first claim differentiating it from rectification generally is "adding the withdrawn vapor to the vapors passing to the first compression step." The purpose of this recirculation is "to maintain the desired temperature gradient" in the column. But recompression of the effluent gases for expansion into the column or around a jacket to bring about the necessary refrigeration—"to maintain the desired temperature gradient" in the column—was on old and successful expedient in the rectification art.

Linde disclosed it in his liquid air patent No. 795,525. It was employed long before Thompson's date at the commercial plants of the Northwestern Blau Gas Company. Blau used it in his patent No. 1,073,843. Moreover, Blau was there working with hydrocarbon mixtures. True, his materials were more volatile, were in "a higher octave," but they were so nearly identical with Thompson's material as to make the availability of Blau's step in the rectification of the Thompson hydrocarbons not only obvious but certain.

Claim 2 differs but little from Claim 1. It is somewhat broader. It covers compression of the effluent vapors howsoever brought about. Validity is denied to it, I think, by Linde's liquid air patent, by Blau's Blau Gas patent and by the process employed commercially by the Northwestern Blau Gas Company.

Claim 3, like claims 1 and 2, calls for a method for producing a greater yield of natural gasoline of predetermined vapor pressure than was to be had by weathering. DeBrey was not in the mind of the patentee for while DeBrey's application antedated that of Thompson by more than three years, no interference was had and DeBrey's patent issued almost a year after that of Thompson.

Unlike claims 1 and 2, claim 3 defines or describes the claimed rectification process in terms of result. It calls for rectification "so conducted that not more than one hydrocarbon of said fraction will occur in substantial quantity in both the vaporous and liquid portions." By the "said fraction" is meant the charging stock whose hydrocarbon components are, in the order of decreasing volatility, usually methane, ethane, propane, butane, pentane and less volatile bodies.

In converting the indirectly expressed process of the claim into a

direct statement of the particulars wherein the rectification process of claim 3 differs from the prior art rectification processes, for example that of DeBrey, plaintiff asserts that Thompson employed a new correlation of temperature and pressure conditions. This contention is predicated, however, not upon any direct or specific disclosure of operating temperature and pressure ranges or of any new rule for their correlation, but upon a deduction from the alleged fact that by Thompson's process a new gasoline different in chemical and physical properties from that of DeBrey was had.

Supplementing this contention plaintiff urges that DeBrey's product consisted merely of a larger yield of "the same old natural gasoline" obtained by weathering. That, however, seems to me impossible for, the vapor pressure of the end product remaining the same as it did, DeBrey obtained a greater yield only because he retained and saved by rectification a larger portion of the components of lower and medium volatility at the expense of an increased loss in the components of higher volatility, such loss, however, being less in volume than his simultaneous gain in the components of lower volatility.

Thus DeBrey's end product inevitably differed both physically and chemically from that had by the weathering process. Moreover, DeBrey's specification states that his product contained "the highest possible amount of valuable fractions * * * approaching the theoretical maximum." Thompson's could contain no more. Being derived from the same charging stock and the yield and vapor tension being identical, the end products of DeBrey and Thompson would manifestly have the same physical and chemical composition.

But plaintiff offers proof to establish that those skilled in the natural gasoline art believed that the wildness of the raw gasoline was due to the presence of butane as well as propane and that, consequently, DeBrey would have excluded the butanes as well as the propanes from the final product and thus have gotten only the maximum yield to be had with substantially all butanes excluded.

Expressed in different words, this contention amounts to no more than that Thompson not only made a sharper separation between the components —a sharper cut—but also made his cut at a point different from that of DeBrey. But Thompson's method of making a sharp cut, a "practically quantitative separation," was not new in any particular. Nor was his point of cut one that an operator seeking the greatest yield, consistent with the volatility specifications, would not make.

A further fallacy of this contention, as I see it, is that the object of rectification was not to obtain an end product of a predetermined chemical composition. Natural gasoline is even now not bought and sold on chemical specifications. In fact, few, if any, plants are equipped with apparatus with which to determine the chemical constituents of their product.

On the contrary, rectification had for its object a maximum yield of gasoline having the established vapor pressure. This was and still is brought about by varying the temperatures until the temperature gradient is found which gives that result. Moreover, there is nothing in the record disclosing that the pressure and temperatures of the process of the third claim or those required to bring about the products of the composition called for by Thompson's product claims are outside the range that would be tried and employed by DeBrey in seeking and obtaining the maximum yield by his rectification.

Consequently, I am constrained to conclude that Thompson differs from DeBrey only in following up his rectification by a chemical and physical analysis of the product obtained thereby and that, as this reveals neither a new process nor a new product, DeBrey stands as a complete bar to the validity of his claims. The increased yield had by both Thompson and DeBrey was brought about by the inherent advantages of rectification and not by any unusual or unique rectification steps or correlation of temperature and pressure. Moreover, rectification was introduced, as I understand the evidence, into the natural gasoline art as soon as that art found it economical and advantageous.

Under Thompson's second patent he rectifies an initial condensate richer in butane and obtains an end product having a greater butane content than that had from the rectification of the condensate extracted by compression or oil absorption. Thompson did not conceive or show how to create the condensate or charging stock richer in butanes.

His claimed products are, I think, but the result to be expected and obtained by a plant operator by subjecting to the usual efficient rectification process the condensate obtained by the more recent solid absorption methods. For the same reasons that require me to conclude that the product claims of the second patent are invalid I am of the opinion that the product claims of this patent are equally so. The bill of complaint must be dismissed.

Refiners Oil Co. Extends Ohio Outlets by Buying into Vahey

Staff Special
CLEVELAND, May 14

REFINERS Oil Co., Dayton, O., has bought a large amount of the common stock of the Vahey Oil Co., Youngstown, thus extending its marketing outlets farther into northeastern Ohio. Refiners Oil now has outlets over more than half of Ohio, eastern Indiana, and northern Kentucky. Further expansion is contemplated, according to W. E. Talbot, general manager of Refiners.

The Vahey Oil Co. business was conceived during the panic of 1893 when W. H. Vahey, a puddler in a Youngstown steel mill, decided he didn't have as much of a future in a mill as he would in a business of his own. He bought a one-horse tank wagon and began to peddle kerosene. The story of his rise is one of hardships and perseverance but he persisted until his business was one of the outstanding successes among Independent marketers in this part of the country.

With the advent of the automobile the business was expanded rapidly. In recent years the management has been largely in the hands of John L. Marsh as vice-president and general manager and E. C. Woods as secretary. Mr. Marsh, or Jack as he is known in the oil trade, is president of the Ohio Petroleum Marketers Association.

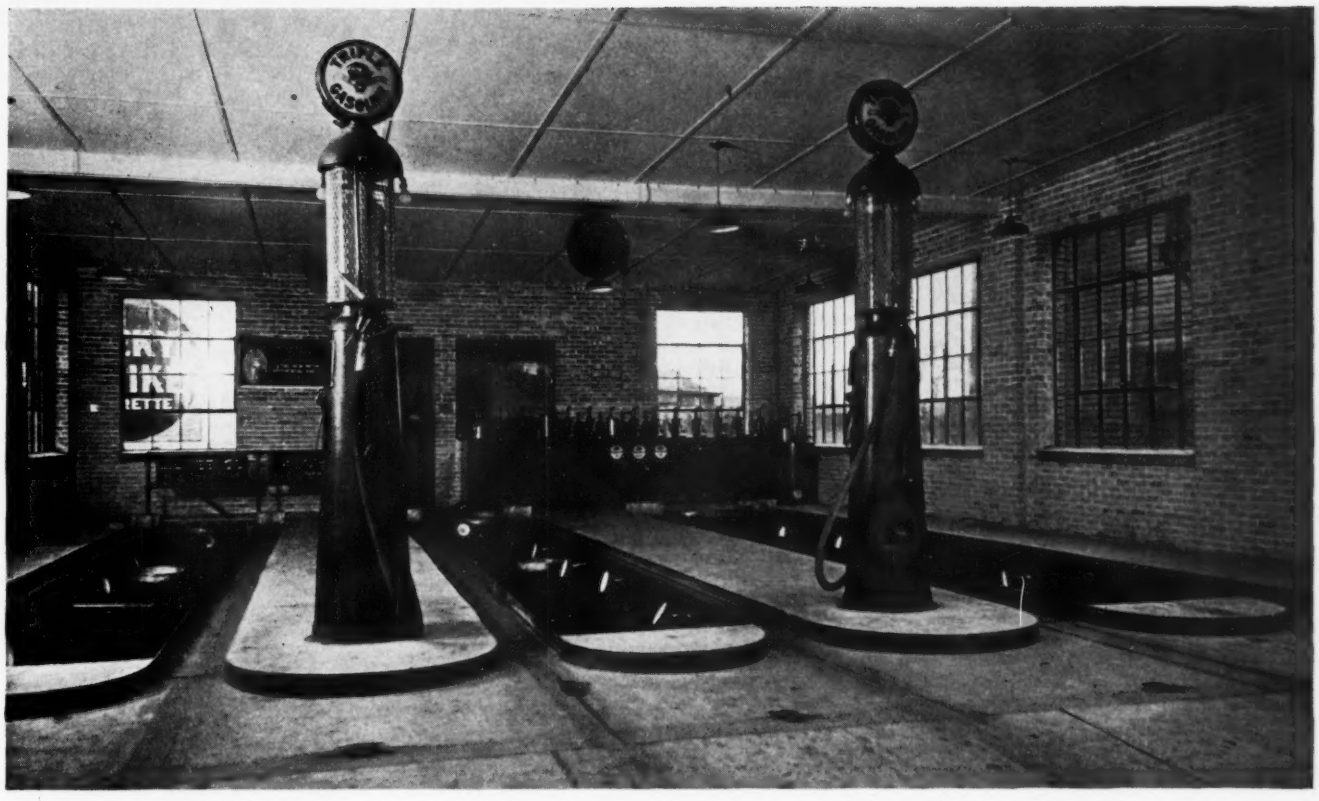
The Vahey Oil Co. has bulk and filling stations in Youngstown and Warren and filling stations and dealers in surrounding territory. A subsidiary company, the Vahey Gasoline Co., had a bulk station in Salem and distribution throughout Columbiana county, Ohio.

In the deal with Refiners, Vahey Oil bought in minority stock in Vahey Gasoline Co. The Vahey-Marsh-Woods Co. was organized and took from Vahey Oil Co. a three-story garage and service station in downtown Youngstown and other downtown real estate to the value of $250,000. The garage and station, which affords complete automobile service besides parking space, will be operated separately from the Vahey Oil Co., Mr. Marsh said.

Mr. Marsh remains as general manager and Mr. Woods as secretary of Vahey Oil Co. No changes in personnel will be made, it was announced.

Refiners gasoline, both competitive grade and ethyl, will henceforth be sold at Vahey stations. Vahey will continue to sell Marwood motor oils.

The consideration involved was not divulged.



Interior view of the Wolverine greasing palace at South Haven. It is next door to the company's best and oldest service station and just across the street from another station but the two gasoline pumps in the foreground do a good business. There are 15 square lubricating oil tanks in the rear of the station

Year's Travel Designed Greasing Station For Michigan Resort Town

By Ward K. Halbert
N. P. N. STAFF WRITER

TRAVELING takes time and money, but business mistakes are also costly.

When A. D. Dubuisson, head of the Wolverine Service Stations, South Haven, Mich., resolved to build a greasing palace he looked around for the best design and construction.

Such not being available on short notice, Mr. Dubuisson decided to travel about the country and visit every noteworthy emporium of lubrication he heard about. It was nearly a year after his resolve to build a station that he broke ground for the plant.

However, after using his station for ten months, Mr. Dubuisson says he would not change the design in any way if he were to build a new one.

"Nobody has a monopoly on good ideas," he said. "Good ideas were the things I wanted. There is still very little recorded knowledge about designing a 'Lubritorium' and two years ago there was even less. So I went to see every one I heard about. I have used my place 10 months now and I would not change it. I have made my share of mistakes; but, if I had to build another complete lubrication station, it would be just like the one I have, except for one little error the builder made."

Mr. Dubuisson objects to telling exactly how many gallons of motor oil and how many pounds of grease his establishment has sold or how much money it has made for the company. But one illustration of its success is permissible to tell:

The greasing palace was built with the idea of making it pay out on half-time operation. South Haven is a lake resort and has regular Michigan weather or worse in the winter time. Mr. Dubuisson's idea was to make the establishment "do its stuff" in the open months and do nothing much but depreciate the rest of the year. He even had an electric door opener designed so that the salesmen in the nearby filling station could press a button and open it when some winter motorist should head into the greasing palace and honk. But the automatic door was never installed. Two men worked at the lubrication station all winter with plenty to do.

The most unique feature of the establishment is the gasoline service. In spite of being next door to Wolverine's No. 1 service station, the greasing station has two gasoline pumps.

The station is of simple rectangular design 35½ x 45 feet, the short side open to the street. It has three straight tracks, each of two-car capacity. The gasoline pumps are to the right and left of the middle track at the entrance.

Four brands of motor oil are sold, Wolverine's private brand, Mobiloil, Veedol and Valvoline. The sales force consistently sells more of the company's own private brand than all the national brands combined, winter and summer, in spite of the fact that the location is on a national highway connecting Chicago and Mackinaw. This is made possible by constructive merchandising to the home town trade and perpetual sales effort directed at transient trade.

As a money maker, gasoline ranks up among the motor oils. Figuring the gross return on gasoline at 3 cents a gallon (the minimum Q.D.A. spread) the pumps in the lubrication

Entrance to the complete lubrication station of Wolverine Service Stations, South Haven, Mich. Its capacity is six cars, two cars per runway. It has been in use a year and the owner says he would not care to change it, it is laid out right

plant are justified. On a basis of gross profit to the company, in July, 1927, the gasoline pumps returned one-fourth as much as the best selling motor oil and 50 per cent more than the "tail end" motor oil. And that month is a fair example of the summer months, according to Mr. Dubuisson.

In the winter months the gasoline pumps in the greasing palace hold up their average better than those in the filling station next door, probably because they are housed. It developed in actual winter practice that, when a motorist came into the greasing palace to have his car thawed out and his tire pressures adjusted, he was more likely to buy gasoline than the average air customer at the filling station, regardless of the time of year. "We have dealer customers in South Haven who sell less gasoline than we sell at our own lubricating plant," Mr. Dubuisson said, "and we have been glad to supply them two pumps and allow them a 3-cent spread."

The Wolverine station is a handsome piece of construction, but is not a monument. Mr. Dubuisson went into the venture for profit and had economy in view when he hired his architect, economy being secondary only to utility. The three biggest economies have not only saved money but they improved the convenience of the plant. They were in oil storage, in heating plant and in doors.

With regard to storage, Mr. Dubuisson's first idea was to install permanent lubricating oil tanks in the basement with apparatus to lift the oil to the main floor, either by vacuum or air pressure. But when he figured on the price he learned that it would cost $930. That made him reconsider, because he meant to hold the total cost of the station under $20,000 and he did not choose to put 5 per cent in tanks and pumps.

The solution was found in square motor oil tanks. He lined them up "at right dress," as a soldier might say, along the back end wall of the service floor, just back of the run ways. The whole platoon of 15 cost only $225 and they hold as much oil as the contemplated basement tanks. Besides they are just as convenient to use and fill.

When oil stocks get low and the tanks have to be replenished, the job is simple. They load a stake truck at the bulk plant and back it into the lubrication station, right down the channel iron runway. The truck body hangs over the back wheels and forms a platform that reaches within a few inches of the oil tanks. The oil is then poured from the drums on the truck into the service tanks. Should the company see fit to put a tank truck in the lubricating oil service, the system would work as well as it does now, or better.

In the battery of lube tanks Mr. Dubuisson devotes six to his own oils and nine to three other brands. There are three grades of Mobiloil, Veedol and Valvoline, one tank of flushing oil and four grades of Triple V, the company's own brand. The service requires two tanks of the medium grade of Triple V, making up the 15 tanks. Mr. Dubuisson says the three V's stand for Vim, Vigor and Vitality.

The second important economy came in the purchase of a heating plant. When the architect drew the plans he provided for a coke bin and a spacious furnace room in the basement, and the builder put them in. But the company had difficulty in getting the furnace delivered. While they waited Mr. Dubuisson did not want his men working and his customers in the cold so he put in a stove. He got a big stove that he thought would do the work and it performed so satisfactorily he decided not to buy a furnace. The original heating plant was to cost $1300 and the stove cost $56. It was a sectional type stove that can be taken down and stored out of the way in summer when business is at its best and working space below ground is most needed.

The third economy was on the disappearing doors that throw the front of the lubrication station wide open. The gasoline pumps inside, just at the entrance, made the overhead type of door impractical. Several kinds were considered and finally the most practical and inexpensive sort of folding door selected.

How Mr. Dubuisson and his men sell more of their own private brand of motor oil than of the nationally advertised brands, is a matter of untiring effort, he says. Of course they concentrate on their Triple V oils in their local advertising and they never miss an opportunity to tell of its merit when they are talking to a local customer. They can keep the local trade sold on the private brand but handling the tourist trade is another matter.

When a tourist drives into the station and asks for a nationally advertised brand of oil by name he gets it without one word of comment from the salesman. If he says "give

me a quart of oil" he gets Triple V, without any comment. But in the summer when the nearby resorts are full of vacationers and one of them visits the station two or three times for some nationally known brand, an effort is made tactfully to sell him Triple V. Incidentally the men are careful never to "unsell" him on the oil he has been using.

A large share of Mr. Dubuisson's trade in South Haven is transient. South Haven is only about 30,000 population and the Wolverine station is not in the heart of town. The paved road from Chicago to Mackinaw City only skirts the town, and the Wolverine station No. 1 was built on the corner where the main street of town meets the U. S. highway. The complete lubrication station is next door to it, only room for a standard sized billboard between them.

During the first six months the greasing palace was in existence a record was kept of the company's three main outlets, Service Station No. 1, the Greasing Palace and the Hartford Station on the Chicago-Detroit highway. At No. 1 service station the sales of all national brands of motor oil totaled 54 per cent of the Triple V. At the greasing palace the sales of national oils were 99 per cent of the private brand. And at Hartford national brands were 56 per cent of the private brand. The proportion of Triple V sales has increased since at all three places.

Service rendered at the lubrication station is largely hand work. There are three runways, each of two-car capacity. It is not at all unusual in summer to have six cars in the establishment at once.

Prices at the station are in line with those throughout the middle west. A complete grease job, including springs and wheels, costs $1.25 for an old model Ford and $2.50 for a Lincoln, the lowest and highest prices quoted. Transmission and differential lubricant is 25 cents a pound. Two quarts of flushing oil for the crank case are 25 cents and fresh oil costs 25 cents a quart for Triple V and 30 cents for all other brands. Greasing a universal joint alone costs 25 cents and a charge of 10 cents is made for any single Alemite fitting.

Considerable service is available at the station, for which no charge is ever made. Battery water is free. Radiators are filled; tire pressures are adjusted and radiators and motors are thawed out in cold weather for all comers without charge.

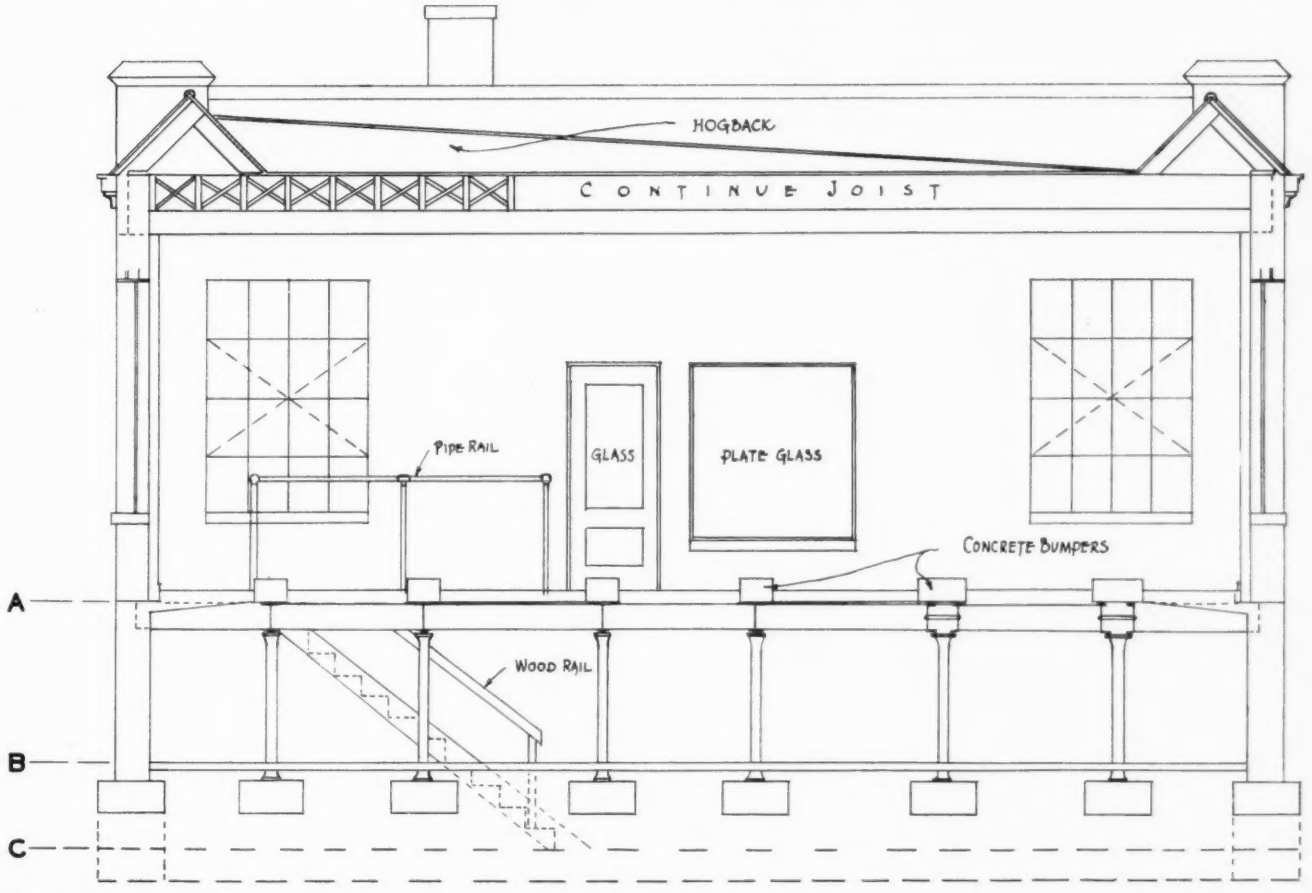
The lubrication station was built by the Bowyer Construction Co. of South Haven and Hammond, Ind. Exact cost figures are withheld but in Chicago it would cost close to $20,000. The front door will clear 10½ feet. Mr. Dubuisson says it should have been 11½ feet to admit the biggest trucks.

$500 Investment Nets 88 Per Cent a Month

HOW would you like to bank $440 each month from an investment of approximately $500 plus common sense, and call it net profit? Fine! And that is just what one eastern marketer is doing! The financial investment is in a car lift. The common sense investment is in the man that does the chassis lubricating and operates the lift.

There is nothing unusual about the location of this lift, but back of the lift in the management is an ideal that the public must be *well served.* This ideal is earning a handsome profit.

The experience of this marketer and his views on "Automobile Lubrication for Profits" will be recounted in the next issue of NATIONAL PETROLEUM NEWS. In the issue following, prices charged for car lubrication and kindred service will be reviewed. Be sure to read the May 23 and 30 issues!



Interior, back-end elevation of the complete lubrication station of Wolverine Service Stations, South Haven, Mich. Observe at the left the specially constructed runway for serving trucks. The upper level, A, is the street grade. The second, B, is where the greasers work. The third, C, is where the customer may stand and look on if he likes

Oil Retailers' Conclave Arousing Interest

CHICAGO, May 11.—What is thought to be the first convention of filling station owners ever called in the middle west will convene in Chicago May 24 and 25. Great preparations are under way for meeting. Reservations have been made for auditorium and exhibit spaces as well as two luncheons and a banquet at the Morrison hotel.

The convention is being called under the name of the Automobile Associated Trades of Illinois. Although this organization embraces more lines of business than filling station men and has members all over Illinois its greatest strength is among the private service station owners of Chicago.

As an incorporated organization it is older than some of the strong state jobbers' associations. Although this is the first regular convention ever arranged the banquet this year will be the sixth annual banquet. This year the officers of the organization expect an assembly of 250 to 300 men in the retail end of the oil business.

F. H. Avery, 3019 So. Michigan Ave., is arranging an educational program punctuated with entertainment, characteristic of trade association meetings. Some of the major oil companies have consented to provide speakers. The Chicago Association of Commerce also is giving the meeting support and publicity.

One nationally known manufacturer of motor oil has agreed to provide an educational film. Other manufacturers, it is said, will exhibit their merchandise for the inspection of the retailers. The association has a professional showman in charge of the details, selling exhibit space and advertising in the program, and arranging entertainment.

Producers Association Incorporated

SACRAMENTO, Calif., May 11.—Articles of incorporation for the California Independent Oil Producers Association were filed here May 9. The incorporators included A. W. Taylor, secretary of the Western Oil & Refining Co.; Irvin G. Augur, president of the Bolsa Chica Oil Corp., and Charles A. Son, oil operator.

Those taking the lead in the incorporating of this new Association have so far refused to discuss in detail its objects, but it is understood they plan to call an open meeting in the next few weeks, and will issue a statement to the oil men whom they wish to interest.

CHARLES McLEAN
Vice president of the Canfield Oil Co., Cleveland, O., who was recently elected a director of the Ohio Petroleum Marketers Association

A.O.M.A. Fall Convention Promised to Detroit

CHICAGO, May 11.—Directors of the American Oil Men's Association, 624 So. Michigan Ave., conferred all day May 10 and, among other things, selected the time and place for the association's fall convention. The gathering will be in Hotel Statler, Detroit, Oct. 16, 17 and 18.

It is too far in advance of the meeting to begin arranging the details of the program but Secretary James A. Gilmore said it would be devoted to merchandising problems.

"A special effort will be made," Mr. Gilmore said, "to induce the attendance of officers and directors of other oil associations and an invitation will be extended to the industry at large."

Arrangements are being made with the hotel to provide suitable exhibit space for persons who wish to show their merchandise or equipment to their assembled prospects but no effort will be made to sell the space to the equipment people and refiners. The directors have ruled that purchases of exhibit space should be made voluntarily.

Wildcat Committees to Golf at Houston

HOUSTON, May 12.—Members of the various wildcat committees of the Texas division of the Mid-Continent Oil & Gas Association have been challenged to compete at golf in a contest to be staged in Houston, May 25. The Dallas, Fort Worth, Wichita Falls and Shreveport committees have been challenged, according to John R. Suman, head of the Houston den. Play will be for the Hamilton and Thomas cups.

Wisconsin Jobbers Take New Name

MILWAUKEE, May 10.—Independent oil jobbers of Wisconsin met in annual convention at the Plankinton hotel, Milwaukee, May 9 and changed the name of their state association to Wisconsin Petroleum Association. They also changed the purposes and policies of the organization to some extent.

There are now practically no restrictions on membership. Any man engaged in selling gasoline and oil may join and an aggressive membership campaign is about to begin. In the past the old Wisconsin Independent Oil Jobbers Association was so closely allied with the Independent Oil Men of America that oil men not interested in the national movement met obstacles to discourage their joining the state group.

Now I. O. M. A. members in Wisconsin may meet in the state organization on equal grounds with jobbers identified with the Dixie Distributors, Inc., as well as private filling station owners and representatives of the Standard Oil Co. and other major operators. The name is generally inclusive and the association will be made the same way if present plans carry.

The May 9 meeting was an annual convention. The election resulted in a complete change in the official personnel. The former secretary, J. M. McLaughlin, vice-president of Bartles-Maguire Oil Co., in charge of sales, was elected president. His headquarters are in Milwaukee. The Wisconsin group has no paid secretary. The other officers elected were:

J. F. Hanson, Hanson Oil Co., Burlington, Wis., vice-president; R. A. Andrew, Pennsylvania Oil Co., Madison, Wis., treasurer, and H. A. Rohde, Rohde-Deuster-Hinkley Oil Co., West Allis, Wis., secretary. Additional board members are: T. A. Clark, Clark Oil Co., Manitowoc; R. H. Downes, Cook & Brown Lime Co., Oshkash; W. L. Zust, Inter-State Oil Co., La Crosse, and W. A. McMillan, Lindsay-McMillan Oil Co., Milwaukee.

Correction

Due to typographical error, price of South Texas 1200 vis. 5-6 color red oil in Gulf export market on page 119 is published at 13.50 to 15.50 cents as of May 14. Correct price on May 14 is 14.50 to 15.50 cents.

Also, price of Oklahoma 64-66, 390 e. p. gasoline should be 7.50 to 7.625 cents on May 14, instead of 7.50 to 7.265 cents, the "2" and "6" being transposed.

WARREN, Pa., May 14.—Oil Service Inc. is moving today from the Leonhart Bldg. to larger offices in the Warren Savings Bank Bldg.

Drilling Restrictive Campaign Spreads To Outside Seminole District

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, May 12

AFTER holding three meetings to find a plan for holding back the development of the south Little River area, operators May 10 agreed to extend the present restrictive plan for 30 days from May 15. At the May 10th meeting operators within the area covered by the plan set up March 1 ironed out the final obstacle to an extension of the drilling time.

The Reiter-Foster Oil Co. had held off agreeing to the extension of time. This company recently drilled in one of the 10 authorized test wells in the south Little River field, the well making better than 2500 barrels initial. Its lease is a 40-acre tract. The company issued a statement saying that it was unduly penalized and that the companies which would benefit most from the proposed extension should give the Reiter-Foster a substantial credit balance during the time its well is off production. It is understood that some arrangement was made, the details of which were not made public.

The extension contemplates that no operator shall start work on new locations, such as moving in material, until June 15 and that would mean about June 25 before any new wells are spudded.

Umpire Collins and the operators' committee are now working to get an agreement on the number of wells to be drilled in the area in the next crop, seeking to restrict to as few as possible.

Further extensions of the drilling date in this pool are unlikely to be made. E. H. Moore, president of the Independent Oil & Gas Co., announced that his company could not postpone all drilling past June 15. Certain partnership agreements the Independent has and pledges to royalty interests must be observed, he said. He asserted that he would assist in holding drilling to as low a figure as possible.

The restrictive movement has been broadened within the past week. A meeting was called by Umpire Collins, acting for the committee of seven recently appointed by the Mid-Continent Oil & Gas Association, to further restrictive effort all over Kansas and Oklahoma. The Allen pool of Seminole, Hughes and Pontotoc counties is the subject of the meeting, set for May 16. Eighteen companies will be represented and it will be proposed that a cooperative testing campaign be set up in advance of the pool, production to be shut in in the event the tests are successful—the same form of plan that was adopted for south Little River.

A meeting of operators who have acreage in the Russell county, Kans. area is proposed, to be held in Wichita, with the date not set. Recently substantial wells have been completed in a deeper sand near Gorham, with indications a good sized pool may be developed.

At the meeting of Little River operators, John M. Lovejoy, general manager Amerada Petroleum Corp., member of the Mid-Continent Oil & Gas Association's advisory committee of seven, announced that a sub-committee was being appointed by Chairman E. B. Reeser to go to New York for a conference with Venezuela operators. The committee will ascertain the facts on overproduction in countries exporting oil to the United States and seek an expression from the operators relative to restrictions on such exports and on development.

This movement grows out of the frequently heard objection of Mid-Continent operators that their efforts to restrict are nullified by continued pouring in of oil from foreign countries. As restrictive efforts are being practised by Texas and California operators, Chairman Reeser will ask associations in those states to name members of the committee, which probably will consist of five.

There is now before the Seminole operators the proposal to set up a proration of production in the Little River pool, restricting the daily output to pipe line capacity of the whole district. The plan was submitted by Ralph B. Pringle, vice-president of the Independent Oil & Gas Co., who was one of the principal designers of the cooperative testing plan of south Little River.

Mr. Pringle's formal statement of his plan asserted that the pipe line capacity of the Greater Seminole field was about 300,000 barrels per day. He proposed that the Little River pool, with its south extension, be permitted to produce as much oil per day as is equal to the difference between the combined production of Seminole, Earlsboro, Searight and Earlsboro and 300,000 barrels. Thus, as the combined production of those fields on May 10, the date of the proposal was made, was 229,599 barrels, Little River's allowance would have been 70,401 barrels. Its actual production on that day was 44,982 barrels with several big wells shut in.

He proposed that the Little River field be divided into units of 40 acres each for proration purposes and that each unit be permitted to produce a quantity of oil daily equal to the quotient obtained by dividing the number of units into the amount of oil permitted to be produced in the field. There was to be no reference to the number of wells on each tract nor any restriction on drilling.

Mr. Pringle said that he was offering the plan as a suggestion and not as a finished work, but that he believed something should be done to settle the Little River question for several months, so it would not have to be brought up every 30 days as it has been.

Some sentiment was voiced for the plan by other operators, but most of them said they required time to comprehend its workings. It was left that way, to be discussed at another meeting in the near future and to be studied by the operators' committee.

A resolution expressing the loss felt by the industry in the death of Howard N. Cole, vice-president of the Pure Oil Co., was adopted by the operators at the May 10 meeting. Mr. Cole was chairman of the operators' committee and had been prominent in the work of restricting overproduction. The meeting elected Ernest J. Nicklos, general superintendent of The Texas Co. in the Mid-Continent, to succeed Mr. Cole on the committee.

Late Tank Wagon Change

NEW YORK, May 15.—On May 16 Standard Oil Co. of New York advanced tank wagon price of gasoline 1 cent generally through its territory where prices were below the normal price of 17 cents. This advance includes Albany, Buffalo, Rochester, Syracuse and Burlington, where tank wagon price becomes 17 cents, exclusive of state tax at Burlington.

Leck Well Extends Winkler Oil Area North Toward New Mexico Gas

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, May 11

NINE miles north of Hendricks field production, in Winkler county, an 8000-barrel discovery well this week ushered another great scope of territory into the west Texas petroleum picture.

The well is No. 1 Leck (sometimes called Daugherty), drilled jointly by Gibson & Johnson of Abilene and the Kessler & Logan interests in sec. 3, block 70, Public School Lands survey. At total depth of 3168 feet, 285 feet below sea level, it penetrated a prolific oil horizon that correlates almost identically with the main lime pay of the Hendricks field.

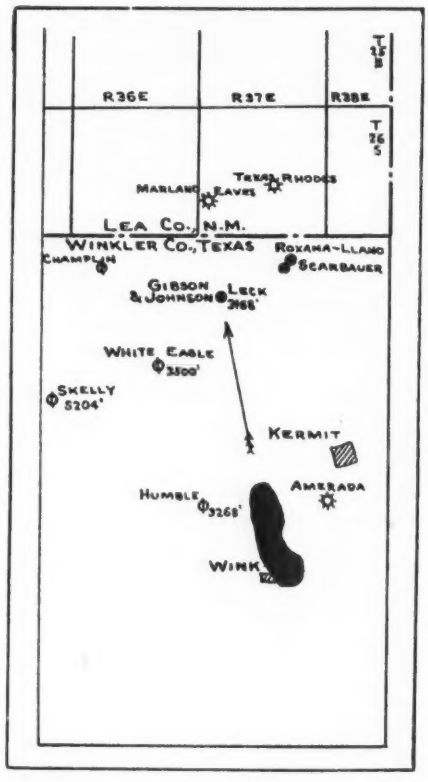
Whether the Leck well represents a new field, or an extension of the producing area on the south, is a question as yet. In either event, operators regard it as the most significant recent development in an area of now unmeasurable reserves.

The Leck well, for the present at least, outranks interest in the Marland Production Co's. No. 1 Eaves, three and a half miles north in 19-26S-37E, Lea county, New Mexico, which at 2928 feet began making 30,000,000 to 40,000,000 cubic feet of gas daily, accompanied by a flow of distillate similar to that produced by the Rhodes well of the Texas Production Co.[1] The Eaves test, which had been running structurally high, came in as a gasser early in the present week.

The Texas-Rhodes well, in 15-26S-27E, Lea county, made 23,000,000 cubic feet of gas, originally, last year. Since that time it has averaged about 100 to 110 barrels of oil and condensate daily at total depth of 3213 feet.

South of the Rhodes and about three miles northeast of the Leck discovery, in the Texas part of the area under discussion, two wells of the Roxana-Llano partnership were completed for small production on the Scarbauer ranch last year. The first of these, in sec. 1, block C-22, got its oil at 3107-3155 feet, to which level it was plugged back after drilling into sulfur water at 3447 feet.

The new Leck well was shut in after completion, May 9, and Gibson & Johnson announced they would make no effort to open it up for the present except for test purposes. Both the well and the area surrounding it on the Texas side of the state boundary come under the Winkler county prorating order put in effect May 5 by the Railroad Commission of Texas.



Sketch map showing relation of Gibson & Johnson 8000-barrel discovery well to older Winkler county, Texas, production, nine miles south, and of Lea county, New Mexico, development

It was stated after a meeting of the Winkler county advisory committee of oil producers in Fort Worth, May 10, that no new operations would be started in the Leck well area for 30 days and that owners of adjacent leaseholds hope to work out special methods for permanent handling.

Various operators expressed the hope that the new area can be drilled on a basis of one well to each 40 acres, instead of 1 well to 10 acres, as in the older Hendricks area. This subject, among others, will come up at a meeting of the Winkler County prorating committee in Fort Worth, Friday, May 18.

The Pecos County Prorating Committee, which is studying the possibility of a new yardstick for the Yates field, combining the proved acreage and potential production methods, as now practised in Winkler county, will also meet in Fort Worth on that day for further discussions. Its prorating is now under the proved acreage plan.

It appears after a meeting of the Howard county advisory committee, dealing with the Roberts-Settles deep lime area, held at Fort Worth, May 7, that it will not be necessary to recommend prorating there for the present.

Operators favor the limiting of development to one well to 40 acres at each of the two lime pay levels found below 2000 feet, drilling depth, in the area. The two pays mentioned are at about 2500 feet and 2900 feet.

Even after the drilling of wells to the pay, operators would have them put on production only after 90 days notice had been given all field interests affected by such exploitation; the exploiting owner of wells to specify the amount of oil he intends to produce and nominate his pipeline outlet.

The Howard county advisory committee has approved the combined yardstick based on 40 acre units of proved acreage and potential production. such as is now practised in Winkler county, in the event prorating becomes necessary. The Pecos County Committee, which will act on its Yates field recommendations for the future at the May 18 meeting in Fort Worth, is studying the advisability of making the unit 80 acres, or 160 acres, because of different lease ownership and other conditions in that field.

The Yates field of Pecos county is, with few exceptions, held under leaseholds covering full sections of acreage, or more; in some cases section after section being blocked solidly. There it is possible to handle the field on a basis of larger acreage units than in areas where leaseholds are small.

Most of the Howard county area already proved for production by seven shut-in wells that are capable of 25,000 barrels daily or more is held under leaseholds covering at least 80 acres. Extensions of the field, however, will carry some parts of it into areas of smaller lease ownerships.

In the north Winkler area, adjacent to the Leck well discovery, acreage is generally held in full sections, but not in every case. A mistake in the

1 National Petroleum News, Feb. 29, 1928, page 94.

rental department of a major company recently caused it to surrender 160 acres out of the very section on which Gibson & Johnson drilled the Leck discovery.

North of the Leck well, in sec. 5, diversified ownership appears; also some cut-up leaseholds lie farther out from the discovery in possible producing territory.

Prairie Oil & Gas Co. owns the north half of sec. 16. south of the Leck well; Texas Pacific Coal & Oil Co. owns all of sec. 4, west of the discovery; Humble Oil & Refining Co. owns sec. 15, to the southwest; Gulf Production Co. owns sec. 17, southeast; The Texas Co., owns secs. 2 and 4, east and northeast.

Except for the "ironing out" of details in the nature of adjustments, the handling of Winkler prorating progressed smoothly after the railroad commission order was put in effect, May 5. The end of the first day found the Hendrick area producing 175,625 barrels, as compared with the 147,839 barrels allowable daily for the first semi-monthly allotment period. The following day, however, the combined production of all companies had been cut to 143,695 barrels and nearly all of them were below their allotment, thereby compensating for the excess of the first day.

The only interest producing greatly in excess of its allotment was the Republic Production Co., of the American Republics group, (J. S. Cullinan interests) which was reported early in the week to have "defied" the railroad commission order on prorating. It later explained as a "misunderstanding" the exploiting of its four wells for several days at more than 14,000 barrels daily. Its allowable production under the prorating yardstick totals 5403 barrels daily.

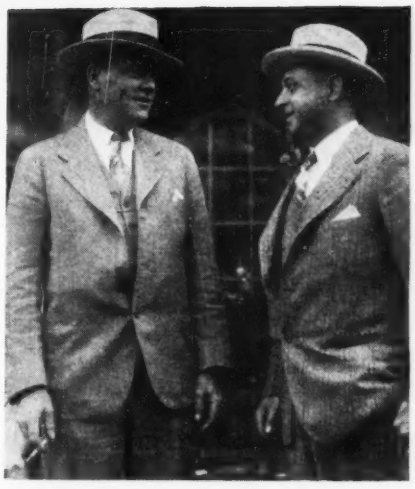
California Natural Gasoline Meeting

LOS ANGELES, May 12—President, vice-president and 10 directors will be elected June 14 by the California Natural Gasoline Association, according to announcement made at the meeting at Los Angeles May 10.

President George Ratcliffe announced that about 25 association members had made arrangements to attend the Natural Gasoline Association meeting at Tulsa, May 20-22 and the party will travel in a special car.

E. G. Ragatz, refinery engineer of Union Oil Co., discussed "Steam Distillation, With Particular Reference to the Vertical Steam Still as Used in Absorption Plants," at the Los Angeles meeting and his subject was of considerable interest to those present, judging by the number of questions asked at the close of the discussion.

Motion pictures taken of the region swept by the St. Francis Dam disaster, made another feature of the May meeting.



Rex Kent, Kent Oil Co., and Clarence W. Rice, recently appointed salesmanager of the Jawhawk Oil Co., Salina, paused to "talk shop" at the recent convention of the Kansas Oil Men's Association at Wichita

C. W. Rice of Vickers Joins Jawhawk Co.

Staff Special

WICHITA, Kans., May 15.—Clarence W. Rice, for several years salesmanager of Vickers Petroleum Co., Wichita, has resigned and has joined the Jawhawk Oil Co., Salina, Kans., as salesmanager.

The Jawhawk Oil Co. was organized about a year ago by owners of three other Kansas Independent oil companies. Rex Kent, Kent Oil Co., L. E. Keeton, Keeton Oil Co. and R. H. Garvey, Service Oil Co., decided they could save considerable overhead on their motor oils if they bought in larger quantities and centralized their compounding and barreling operations.

They organized the Jawhawk Oil Co. and located at Salina because of its central location, and because it is served by four trunk line railroads.

Each of the three companies had been buying its lubricating oil requirements from compounders at various places.

The company built a plant at Salina, and obtained authority to compound Spread Red Eagle compounds. The company also distributes Quaker State oils in 30 counties in northwest Kansas.

The new company was formed without adding executive or sales expense. There was considerable saving in freight paid on material to the compounding plant and shipment of oils to distributing stations.

The organizers have designed to expand their sales outside the three original companies. Mr. Rice will handle the expansion.

Two or three Independent jobbers have become affiliated with the Jawhawk company which acts as their buying agent.

Three New Beacons For Flyers

SAN FRANCISCO, May 12—Three additional high intensity aviation beacons are to be installed by the Standard Oil Co. of California, one at San Diego, one at Portland, and one at Seattle.

This will give western aviation five great lights on the Pacific Coast, the company having recently put into operation a 10,000,000 candlepower beacon on Mount Diablo and another in the Merced Hills near Los Angeles.

The beacons now operating have proved most successful. The Diablo light has been seen from the air 150 miles, from the ocean 80 miles, and from the ground at Sutter, California, 100 miles.

The new lights have the approval of the Airways Division of the United States Department of Commerce. Experts of the Department will shortly visit the three cities named and designate the actual sites for the beacons, selecting points where the lights will be of the greatest use to night flying aviators.

The new beacons will be like those already installed. These are beacons with 36-inch lenses and reflectors, which develop 10,000,000 beam candlepower. They are on 75-foot steel towers and revolve six times a minute.

Mass. Gas Tax Bill Awaits Signing

BOSTON, May 11.—A 2-cent gasoline tax bill passed by the Massachusetts legislature, now awaiting the signature of Governor Fuller, was the main topic of discussion at the meeting of Independent Oil Men of New England here May 9.

Little was known of the provisions to be made by the state for collecting the tax, which, of course, will be in the hands of jobbers to administer. Quick action was taken by the meeting and a committee of three was appointed to consult with the Governor in an effort to protect the interests of the jobbers.

The subject of a cooperative buying department for members of the Association was placed before the meeting. President P. A. Brewer was instructed to appoint a committee to study the advisability of such a department.

About 35 jobbers sat down to the luncheon which was served at the Unicorn Country Club, Stoneham. The morning was devoted to golf as was also the balance of the afternoon after the short business meeting following the luncheon.

The Editors' Viewpoint

National Petroleum News

Making Orators of Oil Men

WHAT the oil industry has long needed is for each man engaged therein to tell his own story about the industry and do a good job of it.

The public relations division of the American Petroleum Institute under the management of Trell W. Yocum is now well launched on a campaign to educate the oil men to this end. It has recently published two books, "Petroleum Facts and Figures" and a "Handbook for Speakers."

The first book lives up to its name. It has about all the handy facts and statistics that anyone might want at any time with which to write a speech or an article about the oil business. There are 250 pages of facts and a complete index to find them. The book sells for $2.

The "Handbook for Speakers" is a combination of reports and speeches of several leading oil men wherein are assembled some of the facts in regard to the oil industry and wherein also is given the story of many of the facts. This book is sent free of charge to those who may have special need of it.

The institute plans to get these books out annually so as to keep the facts in them up to date.

The oil industry has wasted a lot of time in the last half dozen years running around saying, "Let the other man go out and defend us." The large companies have left it to the small companies and the small companies have left it to the large companies.

The work of teaching the oil industry to speak for itself is under way, but it has taken a lot of time and effort to get this work to a point where it may be productive of good. That point has been reached. The institute can tell you, each oil man, what to say and give you an idea how to say it. So the next time you talk before a Rotary club, or Chamber of Commerce, or a church organization, or anywhere else, you will be prepared to present some points of value and advantage about the oil industry.

The individual oil man cannot leave this job of telling the oil industry's story to any one committee or association. He must do it himself as occasion offers. In fact, he should seek occasion to tell the industry's story. That story will best be believed when a man is talking to his friends not when told by some outsider imported for the occasion, or when told in a lot of newspaper space.

The greatest asset the oil industry has is that it is large. It has a few million persons employed in it. It must have a million or more persons with their money invested in it. All of these are living alongside everybody else in this country and talking to them every day. These millions of persons engaged in and enjoying dividends from the oil industry are the ones to tell the oil industry's story to their neighbors.—W. C. P.

Where Restraint is Exercised

IN THESE days of efforts to control development elsewhere it is well to give Gulf Coastal Texas and Louisiana operators credit for their sustained policy of building up undrilled structural reserves.

Of 60 odd known salt domes in the region where Gulf Coastal companies operate, only about 35, including old fields, are producing oil. Many non-producing domes await only the drilling of test wells to change them to a productive status, so well are their oil yielding capabilities understood. Every one of these domes has somewhere on its flanks a potential oil field.

It is true that no one, two or three tests may be counted on to find oil; but the history of salt dome development has shown that eventually the productive spot on each such structural plug may be expected to be found.

Some of the present producing domes yield their oil from shallow cap-rock levels and have not been adequately tested on their flanks. The repression exercised in drilling Gulf Coastal salt domes is not merely an exigency of the occasion. It has been a practice for years. The blanket ownership of entire dome prospects by single companies, however, aids in the ability to continue this repression in many instances.—P. W.

A Factor In Consumption

IN THESE modern days when a second-hand flivver that will run can be bought for as little as $50 everyone can, and does, have a motor car. Most modern factories have a large space provided for parking their employes' cars.

That being the case, any trend which affects the buying power of the laboring class must have an effect upon the consumption of gasoline. Rate of unemployment of workers should be considered along with the size of crops being produced on the farm and the level of farm produce prices.

Recent disclosures of a growth of unemployment in the United States should be considered in making estimates of probable consumption of gasoline this year. In January gasoline shipments from refineries exceeded those of January, 1927, by 15.13 per cent. For the first two months of the year the increase in shipments was 13.96 per cent over January and February last year.

If unemployment should continue to grow neither of these percentages of increase should be applied to future business as a measure of probable requirements. A too sanguine estimate of gasoline requirements at this season of the year could quickly wreck the market price structure which has been built up as a result of good demand during the first quarter while, at the same time, operations were being conducted carefully.—J. C. C.

One of the Veedol Tank Trucks equipped with Wheaton Type A Faucets, like the one shown immediately over the truck.

Every *Tide Water Tank Truck*
is equipped with WHEATON FAUCETS

SINCE the first Tide Water tank truck went out on its maiden trip practically every gallon of Tydol and Veedol have been delivered through Wheaton Faucets. And, just as Tide Water tank trucks are equipped with Wheaton Faucets, so are this company's bulk storage plants equipped with Wheaton Swing Joints, Loading Valves and Anti-Freeze Valves.

Yes, the Tide Water Oil Company has long standardized *on Wheaton Products — a high recommendation certainly!*

A. W. WHEATON BRASS WORKS, NEWARK, N. J.

Wheaton

FAUCETS · VALVES · JOINTS · COUPLINGS · FILLERS · NOZZLES · FITTINGS

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended May 11 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended May 11	Total Week Ended Apr. 13
Plants Reporting	12	28	28	12	80	79
Crude Capacity (bbls.)	92,000	157,200	112,500	54,900	416,600	408,600
Cracking Capacity	30,700	52,600	16,200	22,700	122,200	122,200
Da. Av. Crude Runs	59,535 + 2.0	110,771 + 4.9	82,673 + 8.7	56,515 — 1.0	309,494 + 4.2	288,768
Da. Av. Other Oils	6,903 — 23.8	886 — 62.0	7,136 — 10.5	601	15,526 — 19.2	12,325
GASOLINE—Gallons						
Stocks, May 4	15,861,000	58,693,000	16,985,000	5,168,000	96,707,000	99,636,000
Prod. 5-4 to 5-11	8,880,000 — 1.2	17,857,000 + 11.5	9,139,000 + 11.6	5,278,000 + 0.7	41,154,000 + 7.1	39,585,000
Ship. 5-4 to 5-11	9,624,000 + 3.0	20,787,000 + 18.0	9,249,000 + 5.6	5,610,000 + 10.6	45,270,000 + 11.0	37,075,000
Stocks, May 11	15,117,000 — 5.7	55,763,000 — 5.0	16,875,000 — 0.6	4,836,000 — 6.4	92,591,000 — 4.3	102,146,000
Ratio Sales to Prod	108.4%	116.4%	101.2%	106.3%	110.0%	93.7%
KEROSENE—Gallons						
Stocks, May 4	4,081,000	3,492,000	1,520,000	504,000	9,597,000	9,776,000
Prod. 5-4 to 5-11	1,696,000 — 6.2	2,521,000 + 4.1	1,416,000 — 7.5	644,000 + 58.6	6,277,000 + 1.8	6,887,000
Ship. 5-4 to 5-11	1,612,000 + 10.9	2,521,000 — 14.9	1,491,000 — 10.3	478,000 — 23.0	6,102,000 — 8.9	6,655,000
Stocks, May 11	4,165,000 + 2.1	3,492,000 0	1,445,000 — 4.9	670,000 + 32.9	9,772,000 + 1.8	10,008,000
Ratio Sales to Prod	95.0%	100.0%	105.3%	74.2%	97.2%	96.6%
STOVE DISTILLATE—Gallons						
Stocks, May 4	1,425,000	1,804,000	233,000	69,000	3,531,000	5,013,000
Prod. 5-4 to 5-11	410,000 + 24.6	257,000 — 24.6	173,000 + 23.6	62,000 — 38.0	902,000 — 0.9	820,000
Ship 5-4 to 5-11	43,000 — 79.5	165,000 — 72.2	201,000 — 64.5	67,000 — 44.2	476,000 — 68.1	934,000
Stocks, May 11	1,792,000 + 25.8	1,896,000 + 5.1	205,000 — 12.0	64,000 — 7.2	3,957,000 + 12.1	4,899,000
Ratio Sales to Prod	10.5%	64.2%	116.2%	108.1%	52.8%	113.9%
GAS OIL—Gallons						
Stocks, May 4	6,740,000	30,166,000	3,242,000	5,076,000	45,224,000	48,787,000
Prod. 5-4 to 5-11	1,831,000 + 12.3	1,723,000 — 26.4	937,000 — 49.0	1,797,000 + 2.7	6,288,000 — 16.8	5,576,000
Ship 5-4 to 5-11	1,524,000 + 9.2	935,000 — 69.3	1,563,000 — 37.5	1,693,000 — 19.2	5,715,000 — 36.7	6,512,000
Stocks, May 11	7,047,000 + 4.6	30,954,000 + 2.6	2,616,000 — 19.3	5,180,000 + 2.0	45,797,000 + 1.3	47,851,000
Ratio Sales to Prod	83.2%	54.3%	166.8%	94.2%	90.9%	116.8%
FUEL OIL—Gallons						
Stocks, May 4	14,274,000	34,771,000	34,487,000	20,072,000	103,604,000	97,657,000
Prod. 5-4 to 5-11	6,795,000 + 2.4	7,845,000 + 8.0	11,753,000 + 6.88	7,976,000 — 4.1	34,369,000 + 3.5	30,075,000
Ship. 5-4 to 5-11	6,954,000 + 12.6	4,905,000 — 20.5	11,756,000 + 2.4	8,255,000 + 1.9	31,870,000 — 0.2	25,611,000
Stocks, May 11	14,115,000 — 1.1	37,711,000 + 8.5	34,484,000 — 0.01	19,793,000 — 1.4	106,103,000 + 2.4	102,121,000
Ratio Sales to Prod	102.3%	62.5%	100.03%	103.5%	92.7%	85.2%

Gasoline Produced by Various Methods, Week Ended May 11

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	5,792,000	65.2	13,323,000	74.6	7,285,000	79.7	2,247,000	42.6	28,647,000	69.6
Cracked	2,329,000	26.2	3,655,000	20.5	1,538,000	16.8	2,304,000	43.6	9,826,000	23.9
Natural	759,000	8.6	879,000	4.9	316,000	3.5	727,000	13.8	2,681,000	6.5
Total	8,880,000		17,857,000		9,139,000		5,278,000		41,154,000	

+ or — columns are % change from previous week.

Gasoline Shipments and Crude Charges at New Peaks

Staff Special—By Telegraph
TULSA, May 15

SEVERAL records were broken in the week ended May 11, by the 80 Mid-Continent refiners that report weekly operation figures to this publication. The most notable record was that of gasoline shipments.

Shipments of gasoline totaled 45,270,000 gallons, a new high mark for the time these figures have been gathered by NATIONAL PETROLEUM NEWS. The new record is 1,776,000 gallons over the previous record made in the first week of September, 1927.

Another record was set when gasoline shipments for the four weeks April 20 to May 11, inclusive, reached 170,047,000 gallons. This is an average of 42,500,000 gallons a week.

Another high mark was in crude charges to stills. The daily average

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended May 11. Change in stocks figured from April 13.

GASOLINE

	Gallons
Production	160,194,000
Shipments	170,047,000
Net change in stocks	—9,853,000
Ratio sales to production	106.2%

KEROSENE

	Gallons
Production	26,198,000
Shipments	26,434,000
Net change in stocks	—236,000
Ratio sales to production	100.9%

STOVE DISTILLATE

	Gallons
Production	3,462,000
Shipments	4,404,000
Net change in stocks	—942,000
Ratio sales to production	127.2%

GAS OIL

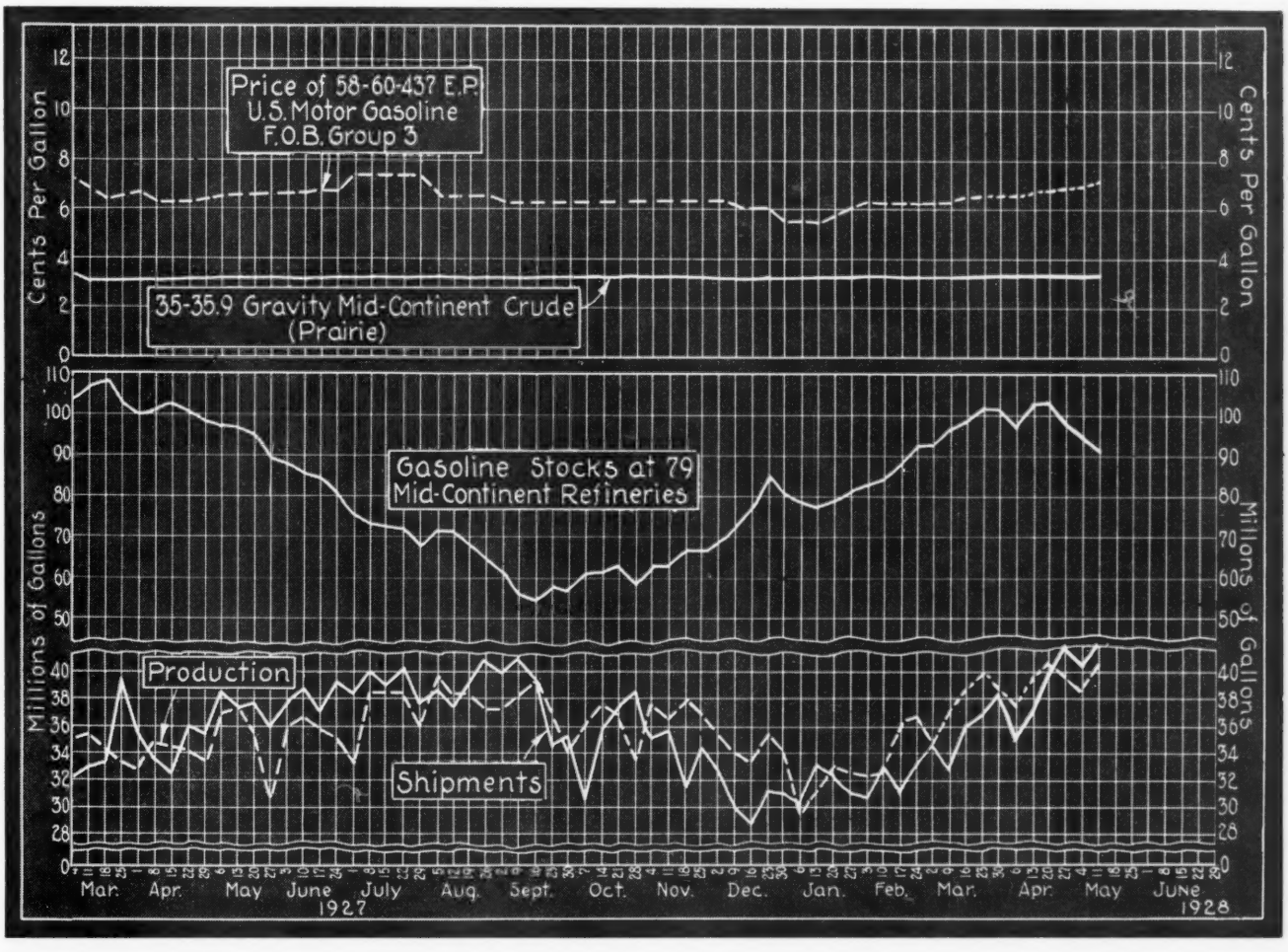
	Gallons
Production	25,717,000
Shipments	27,771,000
Net change in stocks	—2,054,000
Ratio sales to production	108.0%

FUEL OIL

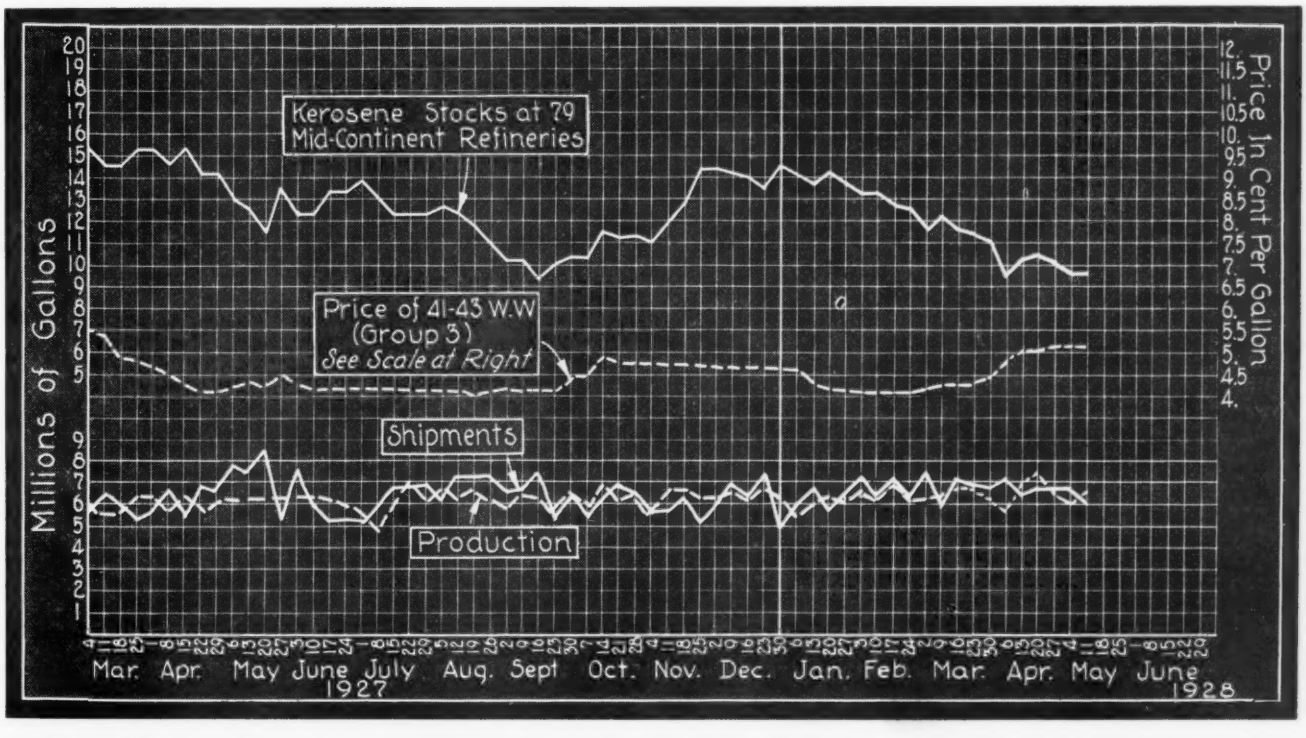
	Gallons
Production	132,785,000
Shipments	129,848,000
Net change in stocks	+2,937,000
Ratio sales to production	97.8%

Barometer of Mid-Continent Refinery Market—Week Ending May 11

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 80 Plants to National Petroleum News



Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date shown in table on opposite page



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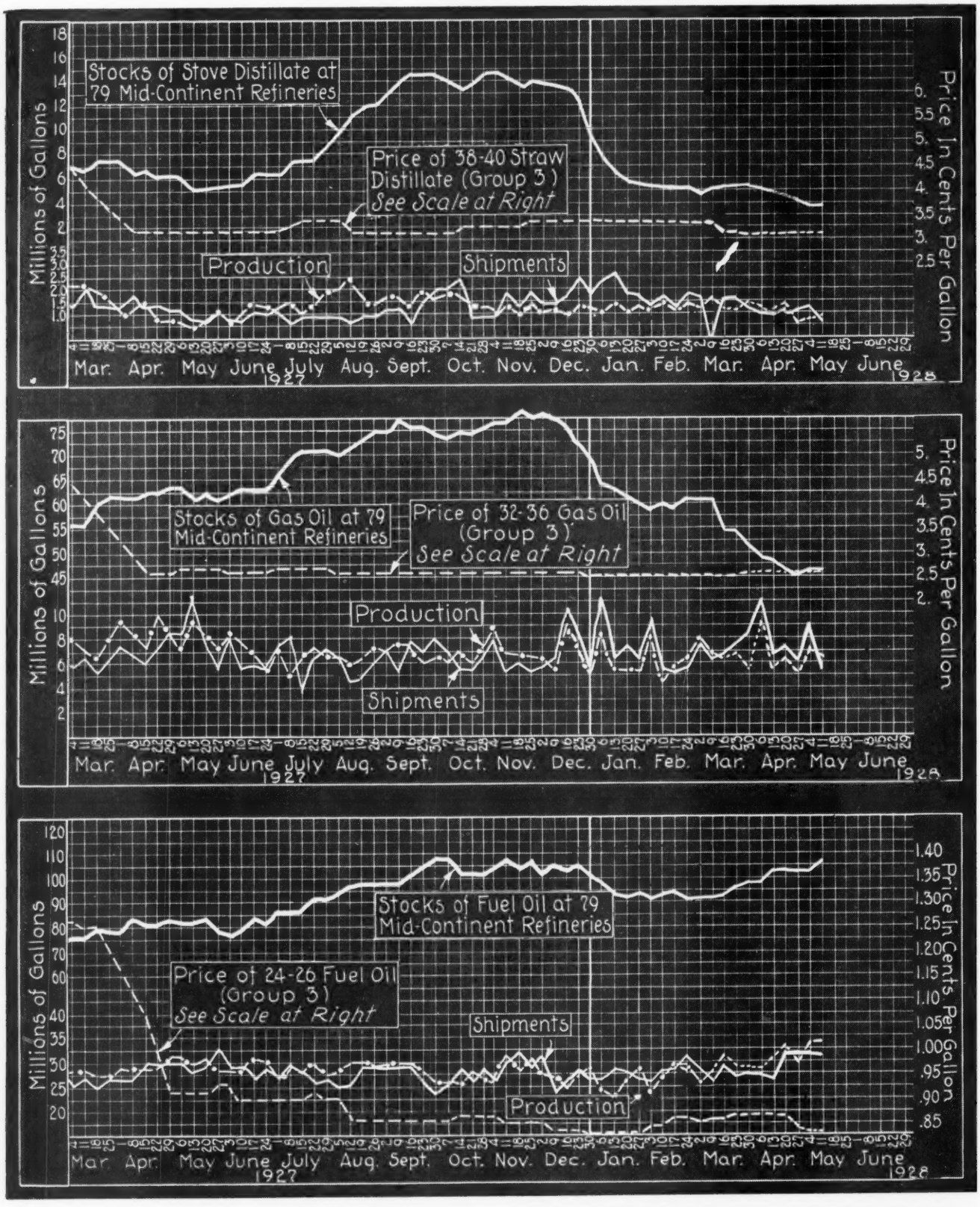
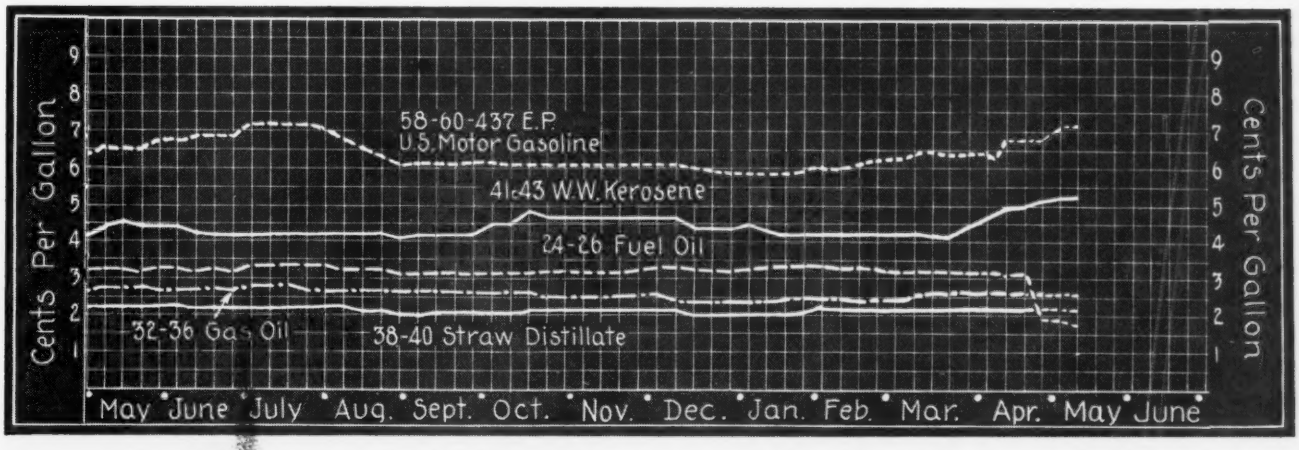

Stocks of Stove Distillate at 79 Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Production
Shipments
Millions of Gallons
Price In Cents Per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1927
1928
Stocks of Gas Oil at 79 Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
Millions of Gallons
Price In Cents Per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1927
1928
Stocks of Fuel Oil at 79 Mid-Continent Refineries
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price In Cents Per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1927
1928

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
Cents Per Gallon
58-60-437 E.P. U.S. Motor Gasoline
41-43 W.W. Kerosene
24-26 Fuel Oil
32-36 Gas Oil
38-40 Straw Distillate
May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June

Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this Issue

for the 80 plants was 309,494 barrels. Kansas refiners increased crude charges slightly over 1,000 barrels daily average. Oklahoma's increase was over 5,000 barrels daily average. Texas had an increase of 4,600 barrels average. Arkansas and Louisiana refiners reduced runs slightly. Runs for the entire district were up more than 12,000 barrels daily average.

Gasoline production accordingly was increased in the whole field although Kansas refiners showed a slight reduction. For the entire field production was up to 41,154,000 gallons, an increase over the previous week of approximately 2,700,000 gallons. Production also was a new high mark, the next closest being the total for the week ended April 24 when production was 41,029,000 gallons.

With the heavy shipments a sizable draft of stocks occurred. For the entire field stocks were cut 4,100,000 gallons to 92,591,000 gallons. A year ago stocks were 97,364,000 gallons. At the current rate of shipments stocks on hand May 11 represented 14.3 days' supply as compared with stocks representing 17.6 days' supply May 13, 1927.

Production of kerosene was increased slightly and shipments were less. Stocks were increased 175,000 gallons. Oklahoma refiners balanced production and shipments while Texas refiners reduced stocks. Kansas, Louisiana and Arkansas refiners put some goods in storage.

Stove distillate shipments fell 1,000,000 gallons to 476,000 gallons. Production was steady at 902,000 gallons. Stocks were increased 400,000 gallons. Kansas and Oklahoma refiners had little distillate business while the Texas and Arkansas-Louisiana groups reduced stocks slightly.

Gas oil production was cut 1,200,000 gallons while shipments fell off 3,300,000 gallons. Stocks were increased 500,000 gallons.

Fuel oil shipments were steady while production was up 1,000,000 gallons. Stocks were increased 2,500,000 gallons. All districts except Oklahoma reduced stocks. Oklahoma refiners ratio of sales to production was only 62.5 to 100.

Burford to Build Plant At Pecos City, Texas

CLEVELAND, May 15.—The Burford Oil Co., recently organized by the interests that control the Crystal Oil Refining Co., Shreveport, La., will build a 5000-barrel refinery and 1500-barrel Jenkins cracking plant at Pecos City, Reeves county, Texas.

G. L. Estabrook, Philadelphia, president of Crystal, is chairman of the Burford company, and F. W. Burford, vice-president and general manager of the Crystal, is president.

The new company was chartered in Texas and Mr. Burford has announced that the authorized 200,000 shares of no par common stock have been issued and paid in. Executive offices will be maintained in Shreveport but a sales office will be opened in Pecos City when the projected plant is ready for operation. The name of the sales manager will be announced later.

Contracts for the installation of the refinery have been let to the Graver Corp., Chicago, Mr. Burford announced. It is expected that the plant will be ready some time between Aug. 15 and Sept. 1. Construction will be supervised by J. J. Thomas, superintendent of the Crystal's two refineries at Shreveport, who will be superintendent of the new plant. He will move to Pecos City July 1. Cost of the plant will exceed $650,000.

Winkler county crude will be used and a 6-inch pipe line is now being built jointly by the Burford company and the Skelly Oil Co. from the Hendricks pool to Pecos City. Skelly, which is not interested in the Burford company, will have a crude oil terminal at Pecos City. Crude will also be shipped by rail from that point to the Crystal's refineries at Shreveport. Skelly expects to develop its own production in the Hendricks pool. Runs in the pipe line are to begin about June 1.

Weighted Average Prices Oklahoma Market

In line with National Petroleum News' new policy of carrying a weighted average price for the four more important Oklahoma gasolines in its market section, these weighted average prices, together with the number of cars of each grade sold, as of Monday, May 14, are published below. The figures are not available for publication in the refinery market table on page 114 of this issue.

	Total Cars	Weighted Average
58-60 U. S. Motor, 437 e. p.	115	7.3000
60-62, 437 e. p.	27	7.2963
60-62, 400 e. p.	3	7.5000
64-66, 375 e. p.	2	7.8125

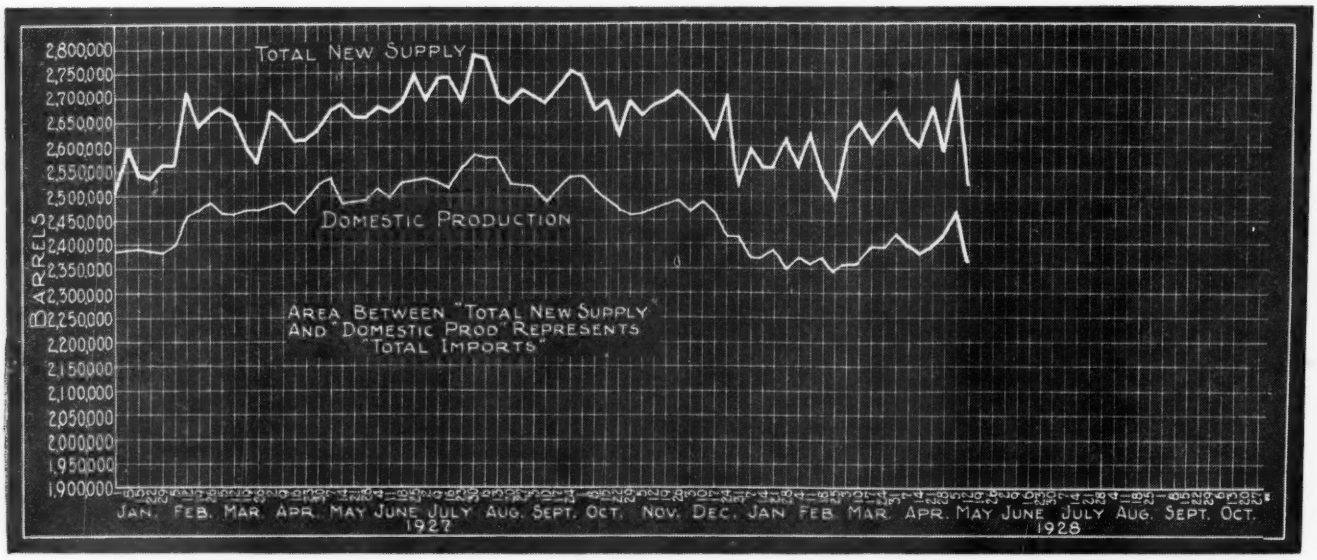
Note: Above prices are in cents per gallon, f.o.b. Oklahoma refinery, in tank car lots.

Kentucky Refinery Market

ASHLAND, May 15.—Gasoline prices in the eastern Kentucky refining district have advanced approximately ¼-cent over the past two weeks. Kerosene prices are also up ¼-cent. Gas and fuel oils are again quoted for spot shipment. May 14 and May 7 prices, f.o.b. eastern Kentucky refinery, are:

	May 14	May 7
60-62, 425 e.p. gasoline	10.25	10.00
64-66, 375 e.p. gasoline	None available	10.25
68-70, 360 e.p. gasoline	10.50	10.50
41-43 kerosene	7.50	7.375
34-36 gas oil	4.625	None available
24-26 fuel oil	3.50	3.625

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	May 12	May 5
Production east of Rockies	1,732,500	1,844,350
Decrease		111,850
Total production in U. S.	2,355,400	2,466,650
Decrease		111,250
Crude oil imports	162,857	259,714
Decrease		96,857
Total crude supply	2,518,257	2,726,364
Decrease		208,107

OKLAHOMA

	May 12	May 5
North Braman	3,050	3,200
South Braman	1,550	1,750
Blackwell	3,650	3,650
Hubbard	2,900	2,850
Thomas	1,450	1,400
Tonkawa	13,800	14,100
Garber	8,700	8,750
Burbank	34,850	35,900
Osage, outside Burbank	28,800	28,900
Watchorn	800	800
Cushing	20,300	20,350
Yale Jennings	9,050	9,050
Davenport	2,000	2,100
Bristow-Slick	23,900	23,900
North Okmulgee	15,500	15,500
Lyons-Deaner	6,500	6,550
Stroud	1,050	1,100
Cromwell	9,750	9,850
Papoose	4,500	4,650
Wewoka	7,200	7,300
Seminole	54,950	53,550
Bowlegs	68,350	70,500
Searight	14,800	14,950
Little River	45,100	48,400
Earlsboro	95,750	93,500
Duncan district	6,650	6,550
Graham	5,800	5,800
Fox	1,700	1,700
Healdton	13,950	13,950
Hewitt	9,000	9,000
Scholem Alechem	13,000	13,600
Others	84,950	83,950
Total Oklahoma	613,300	617,100
Decrease		3,800

KANSAS

Greenwood County	29,500	29,750
Florence-Covert	1,350	1,400
Peabody-Elbing	3,650	3,650
Eldorado-Towanda	14,100	14,100
Augusta-Fox-Bush	4,050	4,050
Rainbow Bend	1,700	1,650
Russell	3,300	3,100
Churchill	11,050	11,400
Oxford	15,500	16,450
Others	24,950	24,750
Total, Kansas	109,150	110,300
Decrease		1,150

NORTH LOUISIANA

Homer	4,450	4,400
Haynesville	6,300	6,300
Caddo, light	9,750	9,850
Caddo, heavy	3,750	3,900
De Soto, Red River	4,100	4,200
Elm Grove	400	600
Bellevue	1,050	1,050
Cotton Valley, light	2,100	2,800
Cotton Valley, heavy	4,250	4,400
Urania	6,750	6,750
Pleasant Hill	550	550
Total, North Louisiana	43,450	44,800
Decrease		1,350

ARKANSAS

El Dorado	5,300	5,300
Champagnolle	7,050	6,300
Smackover, light	7,700	7,600
Smackover, heavy	61,150	60,100
Stephens	1,050	1,050
Nevada	1,550	1,400
Lisbon	2,200	2,250
Others	100	100
Total, Arkansas	86,100	84,100
Increase		2,000

TEXAS (Outside Gulf Coast)

Panhandle District

Hutchinson County	39,900	41,500
Carson County	6,950	7,400
Gray County	18,650	18,750
Wheeler County	1,100	1,000
Others	200	150
Total, Panhandle District	66,800	68,800
Decrease		2,000

North Texas

Burkburnett	11,500	11,000
Electra	12,700	12,850
Iowa Park and K-M-A	3,600	3,500
Wilbarger	12,350	12,000
Archer County	22,750	22,500
Montague-Cooke	12,100	12,300
Others	600	600
Total, North Texas	75,600	74,750
Increase		850

West Central Texas

Stephens County	8,000	8,250
Eastland-Desdemona	7,550	7,750
Brown County	12,700	12,900
Coleman County	1,500	1,650
Callahan County	3,750	3,700
Shackleford County	9,750	9,600
Young County	7,900	8,000
Throckmorton County	1,000	1,000
Palo Pinto County	450	450
Jack County	1,400	1,300
Others	750	900
Total, West Central Texas	54,750	55,500
Decrease		750

West Texas

Jones County	1,300	1,350
Mitchell and Scurry Counties	3,000	3,100
Howard County	4,300	4,000
Reagan County	18,150	18,500
Crane and Upton Counties	71,800	72,800
Crockett County	2,350	2,700
Pecos County	51,500	49,700
Winkler County	159,700	272,800
Others	1,800	2,000
Total, West Texas	313,900	426,950
Decrease		113,050

East Central Texas

Mexia	7,350	7,400
Currie	500	500
Richland	500	500
Wortham	2,000	2,000
Corsicana-Powell	11,650	11,750
Nigger Creek	1,350	1,350
Total, East Central Texas	23,350	23,500
Decrease		150

Southwest Texas

Luling	13,650	13,500
Lytton Springs	1,400	1,450
Somerset	700	700
Laredo District	6,000	6,100
Piedras Pintas	.....	.....
Dale	1,000	1,100
Others	400	400
Total, Southwest Texas	23,150	23,250
Decrease		100
Total, Texas (Outside Gulf Coast)	557,550	672,750
Decrease		115,200

GULF COAST

Coastal Texas

West Columbia	9,700	8,300
Damon Mound	900	800
Big Creek	1,450	1,500
Boling	3,100	2,400
Blue Ridge	9,000	6,900
Pierce Junction	13,300	12,000
Humble	1,050	1,100
Goose Creek	7,200	7,300
South Liberty	3,550	3,700
Hull	10,900	10,750
Saratoga	1,050	1,000
Batson	1,400	1,500
Barber's Hill	500	550
Sour Lake	3,500	3,500
Spindletop	38,350	37,200
Orange County	4,400	4,600
Others	2,500	3,000
Total, Coastal Texas	111,850	106,100
Increase		5,750

Coastal Louisiana

Vinton	5,000	4,600
Lockport	4,100	3,950
Evangeline	1,100	1,050
East Hackberry	3,350	3,650
Edgerly	1,100	1,100
Others	3,350	3,300
Total, Coastal Louisiana	18,000	17,650
Increase		350
Total, Gulf Coast	129,850	123,750
Increase		6,100

ROCKY MOUNTAIN

Wyoming

Salt Creek	41,350	40,050
Grass Creek	2,450	2,600
Elk Basin	1,300	1,100
Big Muddy	2,650	2,750
Lost Soldier	5,000	5,150
Rock Creek	2,500	2,700
Lance Creek	750	750
Teapot Dome	.....	.....
Others	5,800	4,950
Total, Wyoming	61,800	60,050
Increase		1,750

Montana

Cat Creek	1,750	1,800
Sunburst	9,600	9,800
Others	150	150
Total, Montana	11,500	11,750
Decrease		250

Colorado

Moffat (Craig)	1,350	1,600
Fort Collins	2,900	2,900
Florence	1,150	1,450
Others	950	900
Total, Colorado	6,350	6,850
Decrease		500

New Mexico

Table Mesa	.....	50
Hogback	500	500
Artesia	1,200	1,200
Rattlesnake	50	450
Others	200	200
Total, New Mexico	1,950	2,400
Decrease		450
Total, Rocky Mountain	81,600	81,050
Increase		550

CALIFORNIA

Santa Fe Springs	36,500	37,000
Long Beach	173,000	171,500
Huntington Beach	55,000	55,500
Torrance	18,500	18,500
Dominguez	12,000	12,500
Rosecrans	6,000	6,500
Inglewood	29,000	29,000
Midway-Sunset	73,500	73,500
Ventura Avenue	49,000	49,000
Seal Beach	38,000	38,500
Others	132,400	130,800
Total, California	622,900	622,300
Increase		600

EASTERN

(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	111,500	110,500
Increase		1,000

Little River Failure Indicates Narrow Connection to Extension Pool

By John Power
N. P. N. STAFF WRITER

TULSA, May 12

WHILE most attention has been turned on the 7-6 area the past week, other oil producing localities in the Mid-Continent by no means have been slighted.

Activity in the Allen pool in 5-8, in the Pearson Switch-St. Louis district, and in Kansas kept the ball rolling.

Another of the 10 authorized tests in the shut-in area of Twp. 7-6, Seminole county, was a dud. This test, the Carter Oil Co. No. 1 C. Fish, in the NW SW of 12-7-6, encountered the Wilcox at 4263 feet, getting a hole full of water after penetrating it to 4290. The well is but 1980 feet due north of that company's 3900-barrel offset to the Snowden & McSweeney well in Sec. 13. Unless production is obtained in the western part of Sec. 11, or in Sec. 10, the connecting link between the original Little River pool and the 7-6 extension will be of an extremely bottle-neck variety.

Although there is considerable speculation as to whether or not there is any substantial Wilcox production to be found in the St. Louis-Pearson Switch area in Twp. 7-4 no Wilcox completions were reported during the week. New wells in the township are the Independent Oil & Gas Co.'s No. 1 Leclair, in the SW NW NE 23-7-4, which is swabbing 310 barrels from the Simpson lime, at a total depth of 4327 feet; the Independent Oil & Gas Co.'s No. 1 Deckard, in the SW NE NE of 19-7-4, which flowed 262 barrels the first 24 hours after topping the Hunton at 3761 feet and which is being drilled deeper, the present depth being 3778 feet; the Continental Oil Co.'s No. 5 Meghanguit, in the NE SW of 19-7-4 which flowed 947 barrels after being deepened three feet to a total depth of 3948. It came in two weeks earlier for peak production of 2555 barrels.

The sentiment of some operators in the Seminole district, particularly the Twp. 7-6 extension to the Little River pool, has been that they have been called upon for more than their share of curtailment in view of the wide open development of other areas in the Mid-Continent. The Allen district in southern Seminole and Hughes counties Okla, and the new Gorham pool in Russell county, Kans. are the liveliest spots at present.

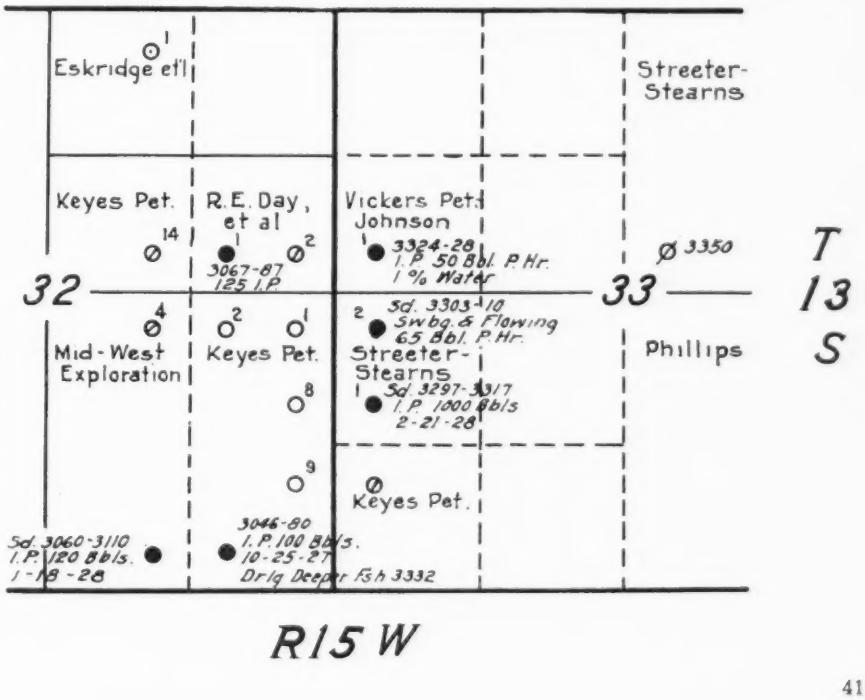
In the Allen field production is rapidly mounting. Two months ago the output amounted to about 10,000 barrels daily from 56 wells. Present production is nearly 20,000 barrels daily from 90 wells, an increase in the per well average of about 45 barrels. The week ending May 7 saw a 4598-barrel daily average increase in production over the preceding week, and, from all indications, the end is not yet. With some of the deep wells being drilled farther into the sand, and no dry holes along the western edge of the field north of the river, it is quite possible this territory might grow into a field of quite respectable proportions.

The new work in Russell county Kansas is drawing considerable attention from thoughtful shutdowners of the Mid-Continent. The present deep pay is found in Pennsylvanian limestone at a depth of about 3300 feet. A core drilled structure on the Oswald formation, covering the south central part of Sec. 32-13S-15W was located by the Midwest Exploration Co. Wells drilled to the east were found to run low, so that deeper production came as rather a surprise to its discoverers, Messrs. Streeter and Stearns. It is reported that, in deepening the Keyes Petroleum Co. well in the SW SE SE of Sec. 32, streaks of granite have been encountered around 3300 feet. This is about 300 feet higher than it was discovered by M. M. Valerius in the production he opened up about ten miles north and west of the new field. This area is the farthest west production in Kansas.

Umpire Ray M. Collins of the Seminole area, at the request of the advisory committee of the Mid-Continent Oil & Gas Association, has called on the operators of the Allen field and the Russell County area to form local committees to aid in the restriction of drilling and subsequent curtailment of production.

Another Kansas well which went no production last week was a Gypsy Oil Co. well completed and shut in for several months. This wildcat, the Gypsy Oil Co. No. 1 Jewell Douglas, in the NE SE NW of 23-34S-2W, in southern Sumner county, found the Wilcox at 4490 feet. When opened up recently it started off at the rate of 52 barrels in the first half-hour, but declined so rapidly that the first day's production amounted to but 487 barrels. In spite of a showing of water the well was deepened 10 inches, increasing the production to a steady flow of 20 barrels per hour. L. H. Wentz, Ponca City operator, is rigging up a north offset to the well. The nearest Wilcox production is in the old North Braman pool of Oklahoma, which is nine miles southeast of the well.

Map of Russell county, Kansas, where the new work is drawing considerable attention



Seminole District Production by Companies and Leases, May 9 and May 2, 1928

BOWLEGS

Company	Farm	S. T. R.	May 9 Wells	May 9 Prod.	May 2 Wells	May 2 Prod.
Amerada	Rascoe	15– 8–6	8	1,660	8	1,655
Atlantic	Baker	1– 8–6	4	365	4	350
Atlantic	Fleet	23– 8–6	3	285	3	450
Atlantic	Grayson	21– 8–6	4	579	4	600
Atlantic	A. Jones	10– 8–6	3	90	3	90
Atlantic	C. Jones	9– 8–6	2	122	2	184
Total Atlantic			16	1,441	16	1,674
Barnsdall	McNac	28– 8–6	1	26	1	26
Barnsdall	Murrow	11– 8–6	4	828	4	639
Total Barnsdall			5	854	5	665
Carter	Bowlegs	15– 8–6	4	1,370	4	1,375
Carter	Burden	23– 8–6	2	260	2	285
Carter	Harjoche	15– 8–6	6	650	6	650
Carter	Hilly	23– 8–6	3	860	3	750
Carter	Jones	11– 8–6	4	1,125	4	1,115
Carter	McGeisey	21– 8–6	1	20	1	30
Carter	Mecco	9– 8–6	1	160	1	35
Carter	Melisse	8– 9–6	1	110	1	105
Carter	Walker	15– 8–6	4	580	4	550
Carter	Wise	23– 8–6	11	2,435	11	2,655
Total Carter			37	7,570	37	7,550
Dixie	Culley	11– 8–6	1	55	1	245
Empire	Lacey	15– 8–6	6	456	6	504
Empire	Wise	23– 8–6	2	315	2	357
Total Empire			8	771	8	861
Gypsy	Bowlegs	22– 8–6	1	180	1	190
Gypsy	Cumsey	8– 8–6	4	1,222	4	1,250
Gypsy	Dosar	7– 8–6	1	100	1	100
Gypsy	Grayson	13– 8–6	4	730	4	847
Gypsy	Harjoche	10– 8–6	2	1,950	2	1,892
Gypsy	Jones	11– 8–6	1	225	1	267
Gypsy	Walker	15– 8–6	8	1,652	8	1,745
Gypsy	Wise	23– 8–6	2	172	2	220
Total Gypsy			24	6,231	24	6,511
I. T. I. O.	Barnett	23– 8–6	2	269	2	387
I. T. I. O.	Barnett-B	24– 8–6	1	215	1	204
I. T. I. O.	Billington	22– 8–6	5	726	5	802
I. T. I. O.	Bowlegs	22– 8–6	10	1,383	10	1,700
I. T. I. O.	Davis	22– 8–6	4	1,082	4	1,167
I. T. I. O.	Fay	13– 8–6	9	2,254	9	2,087
I. T. I. O.	Goforth	15– 8–6	12	1,566	12	1,452
I. T. I. O.	Livingston	15– 8–6	11	3,449	10	3,648
I. T. I. O.	Lizzie	13– 8–6	2	285	2	377
I. T. I. O.	Walker	15– 8–6	8	775	8	888
I. T. I. O.	Wilmott	15– 8–6	4	344	4	361
I. T. I. O.	Work	24– 8–6	1	130	1	128
I. T. I. O.	Youngblood	24– 8–6	2	172	2	172
Total I. T. I. O.			71	12,660	70	13,373
Magnolia	Davis	13– 8–6	3	473	3	545
Magnolia	Davis-M	13– 8–6	1	246	1	231
Magnolia	Hammond	10– 8–6	4	837	4	960
Magnolia	Rhodes	12– 8–6	5	3,534	5	4,082
Magnolia	Van Buskirk	9– 8–6	1	315	1	329
Total Magnolia			14	5,405	14	6,056
McCulloch	Bowlegs	22– 8–6	2	380	2	420
Mid-Continent	Baker	10– 8–6	4	1,256	4	1,254
Mid-Continent	Bowlegs	22– 8–6	1	15	1	30
Mid-Continent	Smith	12– 8–6	6	415	6	435
Total Mid-Continent			11	1,686	11	1,719
Minnehoma	Bowlegs	15– 8–6	4	122	4	312
Prairie	Gahagan	23– 8–6	4	177	4	372
Prairie	Harber	10– 8–6	8	2,675	8	2,630
Prairie	Jones	11– 8–6	4	410	4	445
Prairie	Templeton	12– 8–6	6	2,760	6	2,775
Prairie	Whitney	23– 8–6	4	370	4	435
Total Prairie			26	6,392	26	6,657
Pure	Reed	14– 8–6	15	2,469	15	2,413
Pure	Strother-D	14– 8–6	4	676	4	579
Pure	Strother-F	10– 8–6	4	1,901	4	1,861
Total Pure			23	5,046	23	4,853
Roxana	Taylor	16– 8–6	5	531	5	445
Shaffer	Lacy	14– 8–6	3	220	3	330
Sinclair	Bowlegs	22– 8–6	1	75	1	65
Sinclair	Cumsey	10– 8–6	4	3,328	4	3,522
Sinclair	Ellen	11– 8–6	7	989	7	1,050
Sinclair	Harjo	14– 8–6	3	545	3	605
Sinclair	Jones	10– 8–6	7	2,370	7	2,625
Sinclair	Taylor	10– 8–6	4	2,126	4	2,249
Sinclair	Taylor-W	10– 8–6	1	1,523	1	1,223
Sinclair	Walker	22– 8–6	4	1,020	4	1,000
Total Sinclair			31	11,976	31	12,339
Texas	Reed	14– 8–6	11	2,000	11	2,120
Tidal	Grayson	13– 8–6	4	510	4	550
Tidal	Harjoche	10– 8–6	6	1,675	6	1,175
Total Tidal			10	2,185	10	1,775
Twin State	Jones	11– 8–6	3	87	3	83
TOTAL BOWLEGS			313	67,265	313	69,628

EARLSBORO

Company	Farm	S. T. R.	May 9 Wells	May 9 Prod.	May 2 Wells	May 2 Prod.
Amerada	Anderson	15– 9–5	2	1,135	2	1,080
Amerada	Cowden	4– 9–5	7	1,770	7	1,735
Amerada	Rogers	3– 9–5	2	1,110	2	1,070
Total Amerada			11	4,015	11	3,885
Atlantic et al	Foreman	18– 9–5	1	160	1	162
Barnsdall	Brown	10– 9–5	4	2,039	4	2,099
Barnsdall	F. Bruner	2– 9–5	2	921	2	860
Barnsdall	N. Bruner	10– 9–5	4	1,073	4	1,410
Barnsdall	Cudjo	14– 9–5	1	26	1	26
Barnsdall	D. Davis	11– 9–5	3	327	3	390
Barnsdall	J. Davis	11– 9–5	4	1,290	4	1,251
Barnsdall	M. Davis	11– 9–5	3	115	3	113
Barnsdall	Gibson	9– 9–5	8	3,034	8	2,842
Barnsdall	Hern	15– 9–5	1	4	1	4
Barnsdall	Ingram	1– 9–5	8	3,400	8	3,445
Barnsdall	Pack	10– 9–5	4	202	4	200
Barnsdall	Peter	10– 9–5	4	225	4	174
Barnsdall	Sango	1– 9–5	5	7,513	5	7,746
Barnsdall	Sebolka	15– 9–5	1	528	1	482
Barnsdall	H. Sullivan	11– 9–5	1	10	1	0
Barnsdall	Sull-Harjo	10– 9–5	2	46	2	26
Barnsdall	Watsutke	12– 9–5	4	2,067	4	2,251
Total Barnsdall			59	22,620	59	23,218
Carter	Davis	13– 9–5	2	465	2	570
Carter	Payne	12– 9–5	3	15	3	15
Carter	Sango	1– 9–5	4	1,435	4	1,465
Total Carter			9	1,915	9	2,050
Continental	Kays	2– 9–5	2	145	2	0
Continental	Spencer	12– 9–5	4	1,630	4	1,150
Total Continental			6	1,775	6	1,150
Empire	Barker	12– 9–5	1	680	1	800
Empire	Edmundson	3– 9–5	3	648	3	660
Total Empire			4	1,328	4	1,460
Gypsy	Bruner	10– 9–5	4	2,880	4	2,722
Gypsy	B. Carter	11– 9–5	9	3,017	9	3,242
Gypsy	Earl	16– 9–5	1	20	1	17
Gypsy	Hunick	5– 9–5	1	2,060	1	2,325
Gypsy	Noble	12– 9–5	4	3,465	4	2,937
Gypsy	Peter	10– 9–5	3	220	3	205
Gypsy	Sango	1– 9–5	5	4,002	5	4,337
Gypsy	State	16– 9–5	4	972	4	1,092
Total Gypsy			31	16,636	31	16,877
Independent	Bruner	10– 9–5	4	387	4	430
Independent	Sullivan	10– 9–5	3	87	3	117
Independent	Knapp	8– 9–5	4	1,998	4	2,175
Indep.-Margay	Gaines	11– 9–5	4	955	4	900
Total Independent			15	3,427	15	3,622
Magnolia	Bryant	9– 9–5	6	920	6	1,333
Magnolia	Cowden	4– 9–5	4	75	4	70
Magnolia	Edmundson	3– 9–5	3	30	3	25
Magnolia	Holmsley	11– 9–5	8	1,446	8	1,624
Magnolia	Hyde	13– 9–5	1	1,773	1	1,802
Magnolia	Ingram	10– 9–5	1	30	1	30
Magnolia	Lena	10– 9–5	3	75	3	75
Magnolia	Seay	12– 9–5	9	3,938	9	4,027
Magnolia	Simpson	10– 9–5	3	226	3	251
Magnolia	Sparks	11– 9–5	7	615	7	617
Magnolia	Sullivan	12– 9–5	3	115	3	140
Total Magnolia			49	9,203	49	9,994
Mid-Continent	McCumber	9– 9–5	7	410	7	405
Mid-Kansas	Anderson	14– 9–5	3	140	3	150
Phillips	Dunnaway	14– 9–5	1	30	1	30
Phillips	Gram	9– 9–5	3	132	3	145
Total Phillips			4	162	4	175
Prairie	Baker	24– 9–5	1	50	1	50
Prairie	Davis	13– 9–5	5	3,545	5	3,585
Prairie	C. Graham	3– 9–5	2	35	2	45
Prairie	O. Graham	10– 9–5	4	1,280	4	1,420
Prairie	Stidham	11– 9–5	13	4,445	13	4,440
Total Prairie			25	9,355	25	9,540
Roxana	Bayliss	17– 9–5	1	12	1	15
Roxana	Spencer	12– 9–5	2	1,420	2	1,167
Total Roxana			3	1,432	3	1,182
Shaffer	Clark	1– 9–5	5	966	5	774
Sinclair	Foreman	18– 9–5	1	15	1	0
Sinclair	Hollins	12– 9–5	2	0	2	20
Sinclair	Sango	2– 9–5	3	4,550	3	4,705
Total Sinclair			6	4,565	6	4,725
Skelly	Sherry	6– 9–5	1	163	1	76
Skelly	Spencer	12– 9–5	1	155	1	542
Total Skelly			2	318	2	618
Superior	Walker	2– 9–5	1	5,154	1	0
Texas	Anderson	2– 9–5	7	475	7	725
Texas	Brown	10– 9–5	8	1,905	8	1,925
Texas	Rogers	5– 9–5	4	3,685	4	3,595
Texas	Wilmott	10– 9–5	7	780	7	957
Total Texas					26	7,202
Tidal	Watkins	9– 9–5	8	3,215	8	3,010
Twin State	Barker	12– 9–5	3	145	3	100
Twin State	Hern	2– 9–5	4	1,555	4	1,815
Total Twin State			7	1,700	7	1,915
TOTAL EARLSBORO			285	95,541	286	92,219

LITTLE RIVER

Company	Farm	S. T. R.	May 9 Wells	May 9 Prod.	May 2 Wells	May 2 Prod.
Amerada	Nitey	2– 7–6	3	2,380	3	2,445
Amerada et al	Fore	35– 8–6	2	640	2	690
Total Amerada			5	3,020	5	3,135
Barnsdall	Hotulke	22– 8–5	1	32	1	38
Blackwell	Nitey	35– 8–6	6	2,934	6	2,483
Carter	Fish	36– 8–6	6	1,405	6	1,410
Carter	Jackson	11– 7–6	2	1,835	1	685
Carter	Wilson	12– 9–6	1	3,275	0	0
Total Carter			9	6,515	7	2,095
Continental	Cosar	36– 8–6	4	1,875	4	2,010
Gypsy	Brown	33– 8–6	1	50	1	50
Gypsy	Conard	22– 7–6	1	50	1	50

(*Continued on Page 43*)

Seminole District Production by Companies and Leases, May 9 and May 2, 1928

(*Continued from Page 42*)

Company	Farm	S. T. R.	May 9 Wells	May 9 Prod.	May 2 Wells	May 2 Prod.
Gypsy	Campbell	36- 8-6	2	167	2	265
Gypsy	Denmark	11- 7-6	1	50	1	50
Gypsy	Nungee	1- 7-6	1	32	1	25
Gypsy	Hulhoke	14- 7-6	1	50	1	1,495
Gypsy	Pottie	35- 8-6	3	370	3	365
Gypsy	Renton	11- 7-6	2	2,777	2	2,900
Total Gypsy			12	3,536	12	5,215
Independent	Harris	23- 7-6	2	200	1	140
Independent	Davis	2- 7-6	3	2,880	3	2,965
Total Independent			5	3,080	4	3,105
I. T. I. O.	Campbell	1- 7-6	1	87	1	82
I. T. I. O.	Dungan	35- 8-6	3	2,120	3	2,115
I. T. I. O.	MA House	1- 7-6	1	226	1	159
I. T. I. O.	WE House	1- 7-6	1	54	1	54
I. T. I. O.	House-B	2- 7-6	4	2,254	4	2,395
I. T. I. O.	Hull	26- 8-6	1	75	1	76
I. T. I. O.	Jackson	1- 7-6	3	1,738	3	1,910
I. T. I. O.	McCulla	1- 7-6	3	804	3	837
I. T. I. O.	Nitey	2- 7-6	6	952	7	1,042
I. T. I. O.	Phoebe-A	36- 8-6	3	621	3	716
I. T. I. O.	Phoebe-B	36- 8-6	4	344	4	345
I. T. I. O.	Reed	1- 7-6	1	72	1	61
I. T. I. O.	Soketneche	1- 7-6	4	882	4	923
Total I. T. I. O.					38	10,714
Magnolia	Cruse	2- 7-6	4	1,411	3	1,585
Magnolia	Pottie	35- 8-6	3	680	3	685
Total Magnolia			7	2,091	6	2,145
Mid-Continent	Bruner	11- 7-6	1	100	1	4,240
Mid-Continent	Smith	5- 7-7	1	30	1	26
Mid-Cont.	Wadsworth	36- 8-6	7	935	7	890
Total Mid-Continent			9	1,065	9	5,156
W. B. Pine	Hoyecha	26- 8-6	1	895	1	855
Pine-Phillips	Pottie	35- 8-6	2	525	2	245
Total Pine			3	1,420	3	1,100
Pure	Harjo	11- 7-6	1	2,770	1	2,755
Prairie	Chilcoat	25- 8-6	1	875	1	865
Prairie	House	2- 7-6	4	1,545	4	1,625
Total Prairie			5	2,420	6	2,575
Reiter-Foster	Bunyard	14- 7-5	1	105	1	200
Shaffer	Narcome	30- 8-6	1	105	1	95
Sinclair	Cosar	36- 8-6	2	1,895	3	1,260
Sinclair	Teewee	14- 7-6	1	100	1	298
Total Sinclair			3	1,995	4	1,558
Snowden et al.	Tiger	13- 7-6	1	0	1	1,810
Superior	Soketneche	1- 7-6	1	10	1	13
Texas	Coker	1- 7-6	3	940	3	580
Texas	Hotulke	23- 7-6	1	55	1	100
Total Texas			4	995	4	680
Tidal	House	1- 7-6	3	715	3	800
Tidal	Hohnson	1- 7-6	1	60	1	70
Total Tidal			4	775	4	870
TOTAL LITTLE RIVER			120	44,982	116	47,751
SUMMARY						
TOTAL BOWLEGS			**313**	**67,265**	**313**	**69,628**
TOTAL SEARIGHT			**68**	**14,569**	**68**	**14,396**
TOTAL EARLSBORO			**285**	**95,541**	**286**	**92,219**
TOTAL SEMINOLE			**304**	**52,224**	**304**	**52,835**
TOTAL LITTLE RIVER			**120**	**44,982**	**116**	**47,751**
GRAND TOTAL SEMINOLE AREA			**1,090**	**274,581**	**1,087**	**276,829**
Avg. per well				**252**		**255**

Completions in Oklahoma and Kansas, Week Ended May 12, 1928

OKLAHOMA

Beckham County

Company	Well No.	Locations	Depth		Init. Prod.
Magnolia	1	NWc NE NE 28-9-23 W	T.D. 2726		70M

Carter County

Company	Well No.	Locations	Depth		Init. Prod.
Schermerhorn et al.	3	SEc SW NW 23-1-3 W	2330-2613		230
Fell	4	SEc SW NW 10-4-2 W	2106-2196		340

Creek County

Company	Well No.	Locations	Depth		Init. Prod.
Devonian	6	SWc NW SW 36-15-7 E	2558-2600		30
Tibbens	1	SWc SE 27-15-8 E	2441-2478		7
Independent	1	SWc NE SE 7-19-9 E	2885-2910		30
Devonian	2	C SE NW 4-18-12 E	2054-2060		5M
Henry-Avers	3	CSL SE SE 12-17-10 E	1884-1908		75
Pioneer	5	NWc SW NE 24-17-10 E	2420-2454		25
Wilcox	3	SEc NE NW 18-14-10 E	3406-3426		250
Kennedy-Horner et al.	1	NEc NW NW 25-18-11 E	T.D. 2472		Dry
Dixie	1	NEc SE NW 28-18-11 E	T.D. 2550		Dry
Irelan et al.	1	SWc 11-17-10 E	T.D. 2550		Dry
Prairie	16	NWc NW SE NE 7-17-7 E	T.D. 2425		Dry
Wilson	1	NWc NE 10-15-8 E	T.D. 3233	OWD	Dry

Grady County

Company	Well No.	Locations	Depth		Init. Prod.
Noble et al.	5	NEc SE SW 26-5-8 W	2040-2440		14M

Kay County

Company	Well No.	Locations	Depth		Init. Prod.
Boucher-Marland	1	NEc SE 25-27-2 W	T.D. 3680		Dry
Martin et al.	2	C NW NW 9-27-1 E	T.D. 848		Dry

Logan County

Company	Well No.	Locations	Depth		Init. Prod.
Roxana	1	SWc 29-19-4 W	5813-6000		92

Okfuskee County

Company	Well No.	Locations	Depth		Init. Prod.
Champlin	5	SEc NW SE 15-11-11 E	3479-3501		447
Henry-Avers	3	SWc SE SW SW 12-12-11 E	T.D. 2600		Dry

Okmulgee County

Company	Well No.	Locations	Depth		Init. Prod.
Apex Pet.	1	SEc NE NE 27-14-15 E	T.D. 2245		Dry
Billy-Gene	1	NEc SE 19-13-14 E	T.D. 500		Dry
Crider	1	SEc SW NE 20-16-12 E	T.D. 2550		Dry
Pine	3	SEc NE 8-15-14 E	1841-1845		5M
Nource et al.	1	SEc NE NW 20-15-14 E	760-788		15

Osage County

Company	Well No.	Locations	Depth		Init. Prod.
Petroleum Drlg.	22	SEc NW SW 25-26-8 E	1723-1733		10
Silurian	2	SEc NW SE SE 12-23-11 E	1597-1600		10
Devonian	1	SWc SE NW 27-21-10 E	1865-1923		15
Berlin	11	SWc NW SW 24-29-10 E	T.D. 1810		Dry

McIntosh County

Company	Well No.	Locations	Depth		Init. Prod.
Western Nat'l.	1	SWc SE 17-11-17 E	T.D. 660		Dry

Muskogee County

Company	Well No.	Locations	Depth		Init. Prod.
Newman	1	SEc 3-15-15 E	T.D. 2215		Dry
York	1	NWc SE 12-15-18 E	T.D. 1832		Dry
D. L. T.	1	NEc NW NW 16-15-18 E	T.D. 815		Dry
Duga et al.	1	SEc NE SE 36-15-18 E	T.D. 1390		Dry
Bradley	1	NWc SE 14-15-19 E	T.D. 710		Dry
Crippy et al.	1	NEc NW SW 6-14-19 E	T.D. 554		Dry
Towner-Witt	1	SEc NW SE NW 6-14-19 E	T.D. 827		Dry
Routt et al.	1	SWc NE NW 8-14-19 E	T.D. 759		Dry
Ransom et al.	2	CSL SW SW 33-14-19 E	T.D. 1535		Dry
Foltz	6	CNL SE SE 28-15-17 E	1934-2090		10
Hettick et al.	2	CSL SE NE SW 6-14-19 E	505-527		35

Pawnee County

Company	Well No.	Locations	Depth		Init. Prod.
Wallace-Fisher	3	NWc NE NE SE 30-20-9 E	1084-1110		15
Niller-Mooney	1	NWc 21-20-10 E	T.D. 2127		Dry

Payne County

Company	Well No.	Locations	Depth		Init. Prod.
Magnolia	2	SWc NE SW 8-19-5 E	3050-3067		20

Pontotoc County

Company	Well No.	Locations	Depth		Init. Prod.
Westheimer	2	SWc SE SE 8-5-8 E	2438-2449		200

Pottawatomie County

Company	Well No.	Locations	Depth		Init. Prod.
I. T. I. O.	2	NWc SE 25-7-3 E	4159-4180		548
Magnolia	1	NWc SE 19-7-5 E	4090-4101	OWD	600

Seminole County

Company	Well No.	Locations	Depth		Init. Prod.
Magnolia	5	SEc NW NE 10-8-6 E	4202-4223		450
Magnolia	6	NWc SW 12-8-6 E	4242-4249		75
Magnolia	4	NEc SE SE 2-7-6 E	4189-4198		280
Reiter-Foster	1	SEc NW SW 14-7-6 E	4256-4258		2765
Texas	1	NWc SW NW 23-7-6 E	4165-4172		5620
Mid-Continent	5	SWc SE SE 7-5-8 E	2560-2620		500
Mid-Continent	7	NWc SE SE 7-5-8 E	2589-2605		800
Mid-Continent	11	SWc SE 7-5-8 E	2591-2641		511
Louisiana	3	NWc SW SW 8-5-8 E	2709-2748		1233
Anderson et al.	1	SWc SE NE 18-5-8 E	2620-2663		610
Gilcrease	1	NEc NW NE 18-5-8 E	2594-2650		475
Sunray	3	NWc NE SE NE 18-5-8 E	2564-2636		612
Gypsy	6	SWc NW SE 1-9-5 E	T.D 3610		Dry
Devonian	1	SWc NW NE 12-8-6 E	T.D. 3872		Dry

Stephens County

Company	Well No.	Locations	Depth		Init. Prod.
Hanbury	7	SWc NW SW 27-1-8 W	2198-2200		40
Big Twelve	8	NEc SE SE SW 27-1-8 W	1395-1410		60
Medlin et al.	3	NEc NW NW NE 34-1-8 W	1672-1680		100
Franklin	2	CEL NE SE 12-2-8 W	1527-1550		200
American Pipe Line	3	CWL NW SW 7-2-7 W	1516-1540		285
Pet. Producers	1	NWc SW NW 7-2-7 W	1568-1571		133

Tulsa County

Company	Well No.	Locations	Depth		Init. Prod.
Sheridan et al.	1	SWc NW NW 12-16-12 E	T.D. 2415		Dry
Glidden	1	SWc NW 35-19-13 E	T.D. 2056	OWD	Dry

KANSAS

Butler County

Company	Well No.	Locations	Depth		Init. Prod.
Allison et al.	5	NEc 9-27-6 E	3126-3144		150

Chase County

Company	Well No.	Locations	Depth		Init. Prod.
Denman et al.	1	C NW SE 15-18-6 E	T.D. 1564		Dry

Cowley County

Company	Well No.	Locations	Depth		Init. Prod.
Slick et al.	2	SWc NW 19-32-3 E	T.D. 3515		Dry

Dickinson County

Company	Well No.	Locations	Depth		Init. Prod.
Phillips	1	SEc NW 11-14-4 E	T.D. 2218		Dry

Greenwood County

Company	Well No.	Locations	Depth		Init. Prod.
Simmons et al.	1	NEc SW 26-22-12 E	T.D. 1788		Dry
Polhamus et al.	1	SWc SE SW 35-25-10 E	T.D. 430		Dry
Cross-Gilliland	2	C SE SE 9-25-13 E	T.D. 1605		Dry

Marion County

Company	Well No.	Locations	Depth		Init. Prod.
Lariaux et al.	3	SWc SE NW 23-17-4 E	2327-2391		185
Lariaux et al.	1	SWc NW NW NW 23-17-4E	2346-2351		200
Johnson et al.	1	SWc NE 26-17-4 E	2355-2384		40

Russell County

Company	Well No.	Locations	Depth		Init. Prod.
Wilcox	3	SEc 18-12-15 W	3040-3045		200
Streeter et al.	1	SWc NE 33-13-15 W	T.D. 3350		Dry

Woodson County

Company	Well No.	Locations	Depth		Init. Prod.
Spencer et al.	1	SEc NE 32-24-14 E	T.D. 1754		Dry

Completions in N. E. Central, West, Panhandle and North Texas, Week Ended May 12, 1928

TEXAS
NORTH AND EAST CENTRAL

Brown County

Company	Well Farm	Location Survey	Depth	Init. Prod.
Phillips	12-Hickman	Benson	1240-1261	200
Humble	5-Kilgore	Delgado	1094-1121	16
Humble	10-Kilgore	Delgado	1160-1184	50
Cranfill-Reynolds	1-Keller	Mitchell	1188-1207	100
Henshaw	12-Bush	Kenney	1094-1104	40
Henshaw	11-Bush	Kenney	1089-1100	140
Pickham et al	4-Bush	Kenney	1120-1128	20
Kone Prod	1-Hickman	Benson	T.D. 1286	Dry
Danciger et al	7-Haynes	Delgado	T.D. 1221	Dry
Shuler-Davis	2-Boyson	Williams	T.D. 1250	Dry
Van Bibbs et al	1-Mullans	Mullans	T.D. 1270	Dry
Henshaw	10-Bush	Kenney	T.D. 1185	Dry
Amerada	1-Beck	T&NO	T.D. 1295	Dry
Lehman et al	6-Evans	Woodward	T.D. 1780	Dry
Winkler	1-Black	Brown	T.D. 1175	Dry

Callahan County

Bradstreet	5-Waller	Vigal	T.D. 1763	Dry
York	1-Kile	TE&L	417-420	10

Coleman County

Eastland	3-Morris	Webber	T.D. 2115	Dry
Eastland	4-Morris	Webber	T.D. 3318	Dry
Taylor	1-Henderson	Kignas	T.D. 2068	Dry
Taylor-Link	1-Miller	Coleman	T.D. 2502	Dry
Mid-Sun	2-Guthrie	Lipscomb	T.D 1034	Dry
Humphrey Bros	1-Rutherford	Coleman	T.D. 1310	Dry

Comanche County

Scoggins et al	1-Peteet	D&DA	2765-2779	50&1½M

Eastland County

Teatsorth	2-Holcomb	H&TC	1326-1347	40
Parsons	2-Scott	Howell	3130-3157	8M
West Adams	3-Ramsower	H&TC	T.D. 3789	Dry
Barkley et al	4-Duffer	McLennan	T.D. 3005	Dry
Amerada	1-Roberts	Pucket	T.D. 1045	Dry
Independent	1-Snyder	LaVaca	T.D. 2515	Dry

Jack County

Seaboard	4-Cullers	Cullers	T.D. 1991	Dry

Jones County

Higher	2-Howell	TP	2520-2524	60

Limestone County

Pure	1-Unfried	Neil	T.D. 2888	Dry
Yost et al	1-Poindexter	Flippen	T.D. 2009	Dry

Shackleford County

Gilman et al	1-Reynolds	TP	T.D. 1257	Dry

NORTH TEXAS

Archer County

Barnsdall	5-Wilson	Howard	1711-1712	125
Fain-McGaha et al	9-Wilson	Geraldine	1568-1572	85
Petroleum Prod	4-Wilson	Geraldine	1577-1579	70
Petroleum Prod	5-Wilson	Geraldine	1564-1573	55
Carter	4-Parker	H&TC	T.D. 1717	Dry
Burton	1-Parrish	SP	T.D. 1021	Dry
Shasta	1-Wilson	BBB&C	T.D. 1609	Dry
Pelwin	1-Chancellor	Rucker	T.D. 1561	Dry

Cooke County

Oil Opers. et al	1-Haigler	Jones	T.D. 2502	Dry

Knox County

Deep Rock	1-Kaufman	D&W	T.D. 4516	Dry

Montague County

Crenshaw	1-Shockley	SA&MG	T.D. 2004	Dry
Spencer et al	6-Bouldin	Chacon	823-833	15
Spencer et al	7-Bouldin	Chacon	819-822	18

Wichita County

Company	Well Farm	Location Survey	Depth	Init. Prod.
Bridwell-Mayfield	2-Womack	GC&SF	13-1334	18
Gulf Prod	1-Mitchell	Lewis	T.D. 2010	Dry
Bullington-Lee et al	1-Fassett et al.	SA&MG	T.D. 1855	Dry
Shappell	1-Lewis	KWVFL	T.D. 1790	Dry

Wilbarger County

Fain-McGaha	1-Waggoner	H&TC	T.D. 1185	Dry
Phillips	7-Waggoner	H&TC	2259-2260	24
Fain-McGaha	4-Waggoner	H&TC	2286-2305	150
Fain-McGaha	5-Waggoner	H&TC	2325-2370	350

Young County

Stafford	2-Langston	TE&L	590-601	11
Parker et al	2-Johnson	Sargent	571-581	7
Riggs et al	6-McKinley	TE&L	561-596	400
Continental	1-Weichman	TE&L	T.D. 1202	Dry
Cooper-Panett	1-Hutchins	TE&L	T.D. 1014	Dry
Shappell	1-Cox	Sallie	T.D. 818	Dry
Chandler	1-Ferguson	Tyner	T.D. 540	Dry
Cunningham et al	1-Duncan	TE&L	T.D. 538	Dry
Scott et al	1-Kirby	TE&L	T.D. 602	Dry
Clark et al	1-Vance	TE&L	T.D. 603	Dry
Chancellor et al	1-Grubbs	TE&L	T.D. 555	Dry
Allen-McKee	1-Hickman	TE&L	T.D. 605	Dry
Boller et al	1-Minkley	TE&L	T.D. 602	Dry

WEST TEXAS

Crockett County

Coyle	1-Halff	I&GN	T.D. 1382	Dry
Wyrick	1-Halff	I&GN	T.D. 1400	Dry

Kent County

Marland-Texon	1-Bilby	Thompson	T.D. 2190	Dry

Mitchell County

Magnolia	5-Foster	T&P	T.D. 3150	Dry

Pecos County

McMann	4-Smith	TC	1168-1218	400 (½ Hr.)
McMann	1-Smith	TC	1150-1230	200 (1 Hr.)
California	2-Smith	TC	1585-1652	30 (1 Hr.)

Reagan County

Hagen et al	1-Loftin	D&SE	T.D. 3067	Dry

Tom Green County

Marland	1-Johnson	Heinwich	T.D. 3417	Dry

Valverde County

Magnolia	Whitehead	GC&SF	T.D. 6725	Dry

Winkler County

Atlantic et al	4-Hendricks	PSL	2749-2750	19458
Gulf Prod	13-Hendricks	PSL	2810-3014	11000
Atlantic	7-Hendricks	PSL	2895-3040	2000
Atlantic	3-Hendricks	PSL	2942-2966	1920
Atlantic	5-Hendricks	PSL	2924-2927	9000
Humble	3-Hendricks	PSL	2898-T.D.	2000 & 50M

PANHANDLE

Carson County

Navajo	1-Poling	TT	2400-2496	40M
McMan	1-Percival	I&GN	3242-3255	470
McMan	2-Percival	I&GN	3240-3253	400

Gray County

Guernsey	2-McKinney	I&GN	3257-3320	40
Donley	1-Gordon	I&GN	T.D. 4155	Dry
Texas	1-Williams	ACH&B	2582-2592	59M
Plains Delg. et al	1-Davis et al.	Davis	T.D. 2933	Dry
Sullivan et al	1-Cobb	H&GN	T.D. 2550	15M

Wheeler County

Hatcher et al	3-Fee	H&GN	1470-1487	35M

Completions in North Louisiana and Arkansas, Week Ended May 10, 1928

Louisiana—Bossier Parish—Cartersville

Company	Well	Location	Depth	Yield
Nat. Gas & Prod. Co.	U. S. Government No. 1	31-23-11	3069	42M gas

Caddo Parish—Pine Island

Haynes Brothers	Spell No. 1	15-21-15	3911	25 bbls.
Haynes Brothers	Spell No. 2	15-21-15	3093	salt, water, abandoned.

DeSoto Parish—Pleasant Hill

American Controlled Oil Co.	Lanier No. 2	5-11-11	2800	dry, abandoned.

Richland Parish

Ruston Drilling Co.	Sartor B-1	9-16-6E	2445	49,140,000 gas

East Carroll Parish

Company	Well	Location	Depth	Yield
Palmer Corp	O'Brien No. 1	7-19-11	2354	51M gas

East Texas—Panola County—Bethany

Nat. Gas & Prod. Co.	Roquemore No. 3	B. C. Jordan HRS	2290	3M gas
Natural Gas & Prod. Co.	Roquemore No. 4	B. C. Jordan HRS	966	3M gas

Arkansas Nevada County

Autrey Oil Co.	J. Haynie G-1	6-14-20	1188	35 bbls.

Smackover

Little Fay Oil Co.	Robertson No. 7	25-15-16	2057	40 bbls.

Miller County

Bruton et al	Red River Farm No. 1	2-17-26	3410	dry, abandoned.

Drilling Operations in Oklahoma, Kansas and Texas, Week Ended May 12, 1928

	May 12 Loc.	Rigs	Drg.	S.D.	Total	Week Ended May 5 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	..	6	13	..	19	1	4	13	..	18
Other Osage	3	6	18	1	28	2	11	15	2	30
Bristow-Cushing	2	8	25	13	48	4	6	29	10	49
North Oklahoma	7	2	53	42	104	7	3	55	44	109
South Oklahoma	11	9	107	19	146	11	8	103	18	140
Muskogee	..	12	53	19	84	..	14	61	20	95
Okmulgee-Bristow	12	34	68	23	137	12	28	79	26	145
Seminole Dist	21	36	155	23	235	25	26	162	24	237
Total Oklahoma	56	113	492	140	801	62	100	517	144	823
KANSAS	34	59	156	60	309	38	67	141	64	310
TEXAS										
Central	..	84	221	176	481	..	76	237	168	481
Panhandle	..	64	87	69	220	..	66	98	69	233
N. Central	..	65	111	21	197	..	61	125	22	208
West	..	114	199	150	433	..	110	203	161	474
Laredo	..	1	25	19	45	..	1	25	19	45
Total Texas	..	328	643	435	1,406	..	314	688	439	1,441
New Mexico	..	8	21	24	53	..	8	20	24	52
GRAND TOTAL	90	508	1,312	659	2,569	100	489	1,366	671	2,626

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended May 12, 1928

OKLAHOMA

Caddo County

Company	Well No. Farm	Location
Abernathy et al.	1-	C NW 15-12-11 W

Carter County

Simpson-Fell	2-Winters	SWc SE SE 19-1-3 W
Simpson-Fell	5-Walker	SEc SE SW NW 10-4-2 W

Cotton County

Jenkins et al.	1-Record	NEc NE NE SW 6-2-10 W

Creek County

Dixie	3-Tahkaney	NWc SE SE 7-19-9
Devonian	3-Unallotted	C NL SE NW 4-18-12
Bryan-Emery	1-Fulsom	NWc SW 8-16-11
Stansbury-Young	1-Snyder	SWc NE NE NW 34-15-10
Shaffer	3-Long	NWc NE NE 6-14-9
Buckels	2-Frailey	CWL NE SE 22-18-8 E
Lebow	1-Tiger	SEc NW NW 17-17-7 E
Bu-Vi-Bar	4-Cain	NEc SE 18-17-7 E

Grady County

Magnolia	4-Heathley	CSL SW NE 2-4-8 W
Carter	6-Horton	NEc NW NE 8-3-5 W
Carter	5-Carter et al.	NWc NE SE 21-3-5 W

Hughes County

Magnolia	1-Jetty	NWc NE SW 21-7-8 E

Jefferson County

Sigler McCall	2-Peniston	CSL N½ S½ S½ 17-7-5 W

Johnston County

Franklin	1-Wilkes	SWc SE 18-4-4 E

Kay County

McGraw-Burnham	1-Alberty	C SE SE 32-29-1 E

Muskogee County

Keeney et al.	1-Grayson	SWc NW NW 9-15-15 E
Duga et al.	1-Harris	NWc SE 19-15-19 E
Stein et al.	2-Cobb	NEc SE NW SW 6-14-19 E
Threlkeld et al.	2-Cobb	SEc SW NW SW 6-14-19 E

Okfuskee County

Barnsdall	1-Tiger	SEc NE 31-12-10 E
Oriental Trading	1-Hully	NEc NW NE 29-10-10 E

Okmulgee County

Lavery-Farrell	1-Chittim	NWc SW NW 16-13-11

Osage County

Lake et al.	1-	SEc NW 32-24-8
Silurian	51-	NWc SE NE 18-23-12

Pawnee County

Washoma	1-Buffalo	SEc NE 33-22-5 E

Pontotoc County

Gillespie et al.	2-Fleming	SWc SE 12-5-4 E

Pottawatomie County

Darby	1-Harber	SEc NE SW 23-7-4 E
Gypsy	1-LeClair	NWc SW SE 23-7-4 E
Gypsy et al.	1-Powell	SEc NW 19-7-5 E

Seminole County

Superior et al.	2-Walker	SWc NE NE 2-9-5 E
Marland	1-Mathis	NEc SE SW 7-8-6 E
Continental	2-Cosar	SWc SE SW 25-8-6 E
Gypsy	1-Cosar	SWc NW SW 25-8-6 E
Continental	5-Cosar	NWc NE NW 36-8-6 E
Gypsy	1-Cosar	NWc NE 36-8-6 E
Sinclair	4-Cosar	NEc NW NW 36-8-6 E
Magnolia	1-Foreman	SEc SW SE 13-8-7 E
Dixie	3-Foster	NWc SW SW 28-8-8 E OWD

Stephens County

Pearce-Brown	1-Burkes	NWc SE 5-2-6 W
Winkler et al.	1-Burns	SEc NW 31-1-8 W
Big Twelve	4-Taliaferro	CWL SE SW 27-1-8 W

Tillman County

Bundy	1-Hayter	CNL S½ SE 23-2-17 W

Tulsa County

Glidden	1-Wray	CNL NW SW 35-19-13
Short	1-Ishmael	NEc SE 13-18-12
Scott et al.	1-Billy	NEc SW 33-17-14

Wagoner County

Orr	2-Grayson	SEc SW 34-17-18 E

KANSAS

Cowley County

Roth-Faurot	4-Winfield	Lot-4, Blk-38, 22-32-4 E
White Eagle	1-Smith	SEc NE SE 26-34-5 E

Elk County

Empire	4-Porter	SWc NE NW 13-29-8 E OWD
Denman et al.	3-Lewis	SEc SW SE 35-31-10 E

Greenwood County

Shaffer et al.	1-Schwab	NWc SW SE 30-22-13 E

Marion County

Youker-Hoffman	1-Martin	SEc SW 3-17-4 E
Phillips	2-Franks	SWc SE SE 15-17-4 E
Lariaux et al.	4-Merrilatt	SWc NW NE NW 23-17-4 E

Saline County

Estey et al.	1-Peterson	C NE 6-16-5 W

Sumner County

Ramsey et al.	3-Caldwell	NEc SE NE NE 22-32-2 E

TEXAS
NORTH AND NORTH CENTRAL

Archer County

Company	Well No. Farm	Location	Survey
Rose	1-White	Blk-19	DCSL
Steadman et al.	1-Neilson	Blk-20	CSL
Archer	1-Thompson	Sec-20, Blk-7,	ATNC
Moran et al.	1-Parkey	Sec-11, Blk-3	H&TC
Kruger et al.	1-Andrews	Abstract-446	DL&C
Hutchinson	2-Fee	SEc-23, Blk-1	ATNC
Minnick-Dale	1-Hutchinson	Sec-132, Blk-6	ATNC
Christie et al.	1-Fish	Sec-85	Harris
Burns et al.	1-Ikard	Abstract-761	Young
Consolidated	1-Harron	Abstract-1282	Garvey
Rose	2-Garvey	Sec-1856	TE&L
Archer et al.	1-Garvey	Sec-2, Abstract-841	BBB&C
Fain-McGaha	9-Wilson	Blk-20	Geraldine
Golhke	2-Jones et al.	Blk-236	Geraldine

Brown County

Curry	3-Chambers	Blk-147	Logan
Baker et al.	2-Eubanks	Blk-141	Mitchell
Baker et al.	3-Cross	Blk-624	Kenney
McGahkey	1-Gaines	Sec-35	HT&B
Milham	1-Rosser	....	Cross
Charter	5-Byler	Blk-43	T&NO
Cranfill-Reynolds	2-Keller	Blk-141	Mitchell
Preston et al.	2-Bush	Blk-624	Kenney
Green et al.	1-Bull	Blk-623	Honeycutt

Callahan County

Watchorn	1-Finley	Sec-73	Boal

Coleman County

Diggs	2-Key	Blk-168	Wickson
Diggs	1-Key	Blk-168	Wickson
Humphrey Bros.	1-Henderson	Blk-656	Crochran
Meeks-Duffield et al.	1-Taylor	Blk-78	Overby
Byrd et al.	1-Cheney	Blk-662	Gray
Eastland et al.	Hassard	Sec-2	GH&H

Concho County

Douglass	1-Harrell	Blk-27	Moor

Eastland County

Harbin	1-Turner	Sec-30, Blk-2	H&TC
Teastsworth	1-Hogue	Sec-5	ET
Reet et al.	4-Ray	Sec-38, Blk-4	H&TC
Anderson	1-Collins	Sec-24	D&DA

Foard County

Panhandle et al.	1-Long	....	Seaton

King County

Texas	1-Johnson	Sec-4, Blk-P	H&GN

Palo Pinto County

Britton-Gordon	2-Strawn	....	Ryan
Nelson Synd	1-Harvin	....	Burleson City Sch. Lands

Shackleford County

Tannehill et al.	5-Mathews	Sec-33	ET
Petroleum Prod.	4-Mathews	Sec-28	ET
Kingwood	1-Gorsuch	Sec-81, Blk-13	T&P

Smith County

Humble	1-Williams	....	Keller

Wichita County

Texas	1-Waggoner	Abstract-782	GC&SF
Texas	1-Mangold	Sec-37	Castleman
Trout et al.	1-Hoge et al.	Sec-33	KWVFL
Hammon	1-Ferguson	Sec-50	KWVFL
Ownes	1-Roller	Blk-29, Abst-128	HT&B

Wilbarger County

Murchinson	2-Waggoner	Sec-3, Abstract-534	SP
Texas	6-Waggoner	Blk-4	H&TC

Young County

Texas Pacific	4-Donnell	Sec-1211	TE&L
Rose	1-Kunkel	Sec-4	BBB&C
Gwynn et al.	1-Kunkel	Blk-4, Abstract-1838	BBB&C
Continental	1-Weichman	Sec-173	TE&L
Zilkey	1-Hill	Sec-195	TE&L
Hammond et al.	1-Hunt	Sec-175	TE&L
Shadbolt et al.	1-Baker	Abstract-1862	Richardson
Riggs et al.	6-McKinley	Sec-1489	TE&L
Pennell et al.	6-Boone	Abstract-34	BBB&C
Cunningham et al.	8-Hawkins	Sec-1914	TE&L
Morrison	1-Keen	Sec-3, Abstract-1954	G&BN
Chancellor et al.	1-Grubbs	Sec-635	TE&L
Gyset	1-Boboussett	Abstract-1274	Wood
Atlantic et al.	1-Smith	Sec-2705	TE&L
Clark et al.	1-Vance	Sec-2716	TE&L
Boller et al.	1-Minkley	Sec-1990	TE&L

WEST TEXAS AND PANHANDLE

Carson County

Sparton	1-Bednorz	NW NE NW Sec-202, Blk-3	I&GN

Crane County

Gulf Prod.	50-McElroy	Sec-200, Blk-F	CCSD&RG
Humble	1-University	SEc Sec-40, Blk-30	Univ.

Crockett County

Tidal	1-University	SEc SW Sec-8, Blk-50	Univ.
Taylor Link	1-Peck	NWc Sec-37, Blk-31	H&TC
Gulf Prod.	1-Thompson	Sec-74, Blk-1	I&GN
Grayburg	8-Halff	Sec-70, Blk-1	I&GN

Fisher County

Cranfill-Reynolds	2-Young	C SW NE Sec-208, Blk-1	BBB&C

Glasscock County

Roxana	1-Boston	C SE Sec-30, Blk-34	T&P

Gray County

Travis et al.	1-Chapman	NE NE SW Sec-50, Blk-25	H&GN
Holbrook et al.	1-Willaims	SWc NE Sec-15, Blk-1	ACH&B
Wilcox	28-Worley et al.	SE NW NE Sec-61, Blk-3	I&GN
Phillips	4-Jackson	NE SE NE Sec-88, Blk-B-2	H&GN

Howard County

Goodley	4-Hook	Sec-140, Blk-29	W&NW

Hutchinson County

Marland	1-Burnett	C NE Sec-125, Blk-5	I&GN
Premier	1-Barton	NW NE NW Sec-33, Blk-Y	A&B
Deal et al.	2-Johnson	SEc SW Sec-28, Blk-Y	A&B

Kent County

Cosden	1-Wallace	C SW Sec-56, Blk-98	H&TC

Mitchell County

Owen-Sloan	1-Brown	NEc Sec-81, Blk-26	T&P

Pecos County

Humble	8-Smith	NW SW SW Sec-36, Blk-194	TC

Wheeler County

Clark et al.	1-Purcell	C NW SW Sec-52, Blk-17	H&GN

Winkler County

Southern Crude	4-Hendricks	SWc Sec-28, Blk-B-5	PSL
Landreath Prod.	3-Grisham et al.	CEL W½ NW Sec-45, Blk-26	PSL
Landreath Prod.	2-Hendricks	SEc Sec-40, Blk-26	PSL
Gulf Prod.	19-Hendricks	NWc NE Sec-45, Blk-26	PSL
Gulf Prod.	18-Hendricks	NEc Sec-45, Blk-26	PSL
Landreath Prod.	2-Hendricks	NWc SW Sec-40, Blk-26	PSL
Marland	1-Hendricks	SEc Sec-29, Blk-26	PSL
Southern Crude	4-Hendricks	NEc Sec-44, Blk-26	PSL
Atlantic	2-Hendricks	NWc Sec-46, Blk-26	PSL
Humble	3-Hendricks	SWc Sec-39, Blk-26	PSL
Cranfill Reynolds	1-Hendricks	SEc NW Sec-33, Blk-26	PSL
Southern Crude	3-Hendricks	SEc NE Sec-41, Blk-26	PSL
Atlantic et al.	8-Hendricks	CWL NW Sec-40, Blk-26	PSL
Atlantic et al.	7-Hendricks	SWc NW Sec-40, Blk-26	PSL

Long Beach Well Producing From 7409 Feet

LOS ANGELES, May 12

LONG BEACH this week boasted of the deepest producing well in the world, in addition to one drilling at 7480 feet, with four other holes drilling below the 7000 foot mark.

Richfield Oil Co.'s Denni 6 is the world record producer at 7409 feet, but Shell Co. in a few days may take the honors for the deepest drilling well, with one now close to 7500 feet.

During the past week, six new wells were completed with a total initial production of 12,500 barrels, while during the same period five wells were tested and found to be making water. They must be recemented. All the new wells now being completed are drilling into the deep zone. The daily production of the 92 deep zone wells this week was 110,000 barrels, with 199 wells drilling for the deep zone, in addition to 31 locations and new rigs.

The large amount of gas produced by the new wells at Long Beach is becoming troublesome. Plans are being worked out to pipe surplus gas to Domingues and Coyote and probably other fields to be used in repressuring work, but at this time full plans have not been completed.

One completion was reported from Ventura Avenue with a production of 1500 barrels, while 37 wells are drilling in the field. Associated Oil Co. is drilling one well very close to the 7500 foot mark and is expected to stop drilling most any day and prepare for a test. This is the well that the company at one time thought might be carried to 8000 feet, if possible. Decision has been reached not to attempt the depth record with this hole, however.

The daily surplus of gas at Ventura Avenue ranges between 75,000,000 to 100,000,000 cubic feet, according to the weather. Recently during very nice weather it slightly exceeded 100,000,000 cubic feet a day, but with cloudy and rainy weather dropped to less than 75,000,000 cubic feet the gas companies being able to take more gas for their distribution systems.

At Rincon, three new wells were completed the past week, making the daily production of the field May 9 3800 barrels from eight wells. Close to 2000 barrels a day is coming from five Pan American wells. Pan American recently completed two wells on the Hobson fee lease for 1360 barrels of oil, one well producing from 3036 feet, while the other was drilled to 3171 feet.

The Rincon field is in Ventura County some eight miles from the Ventura Avenue field, along the ocean front. The shallow sand is first developed but has not proved worth producing. The second sand is found around 3000 feet and it is expected that one if not two deeper sands will be developed. Rigs are being erected for some distance along the ocean front and the busy area is extending further and further to the Northwest.

At Potrero, where Associated Oil Co. proved the existence of a new field just outside of Los Angeles city limits, company's Cypress 3 has been placed back on production with a daily production of 800 barrels of 47.6 gravity oil through 21/64 inch beam. The oil is cut 3 per cent and has a tubing pressure of 325 pounds against 825 pounds pressure on the casing. Company's No. 1, which made a lot of dry gas, has been shut in, and is standing idle at last reports.

Six new wells were completed at Huntington Beach during the past week, but six wells made only a total of 260 barrels. Two wells were completed at Inglewood for 350 barrels. At Coalinga, one small pumper was reported, making 4 barrels, while a new well at Round Mountain was estimated at 950 barrels, initial.

Activity in most of the older fields of the state is at low ebb, although it is expected the number of wildcats actively drilling will show an increase during the summer as some of the companies will use their crews in the new work as wells are completed in the proven fields.

Yates Field Potential High is Raised

HOUSTON, May 12.—A well of the California Co., No. 15 on its Yates field No. 1 lease, gained a record this week for potential daily production in west Texas oil territory.

Based on a 45-minute gage, in which the well flowed 2245 barrels it produced at the rate of more than 71,328 barrels daily. The first similar sized Yates field well was the C-2 completion of the Mid-Kansas & Transcontinental partnership which, on a 1-hour test, made at the rate of roundly 65,800 barrels daily.

Yates field operators do not believe wells tested on the 1-hour basis to reach daily estimates would sustain such capacities any considerable time, if flowed open. Potential production estimates, however, are reached on such a basis. The field potential was recently estimated at 1,500,000 barrels daily and each completion shoves up the total.

Market outlet continues to be 51,500 barrels daily under the Yates field prorating agreement.

MYERS GROSS

"Pete Roleum" is his office boy; Mr. Gross is sales manager of Vickers Petroleum Co.

It Seems That Pete Roleum Is an Inventor Too

WICHITA, May 12.—Myers Gross and his office boy, "Pete Roleum" have moved over to the Vickers Petroleum Co. where Mr. Gross has been named sales manager, succeeding C. W. Rice, who resigned recently.

Mr. Gross has been in the oil business since 1912. He was secretary and sales manager for the old Pan-American Refining Co. when it was incorporated at Oklahoma City. When the company was sold to the Oklahoma Producing & Refining Corp., Mr. Gross moved to Wichita, where he became sales manager for the Sterling Oil & Refining Co.

About three years ago Mr. Gross organized his own company, the Refiners Consolidated Sales Co. to handle primarily the sale of refinery utilities.

"Pete Roleum" is Mr. Gross' brain child. His letters have appeared many times in the "On the Lazy Bench" column of NATIONAL PETROLEUM NEWS. Since Mr. Gross has become associated with Vickers, Pete has his own printed stationery, and is helping his boss build good will. His latest stunt is the promotion of a "Safety Pea Knife." If any reader doubts that Pete actually has such an invention, a letter will bring surprising evidence to the contrary.

LOS ANGELES, May 11.—Ed W. Ramsey, of Tulsa, recently spent a few days in Los Angeles, touring the various oil fields. Mr. Ramsey was deeply interested in the deep-zone development at Signal Hill.

Marland Board Reduced To 15 Members

NEW YORK, May 12.—E. W. Marland was again elected president of the Marland Oil Co. at the organization of the new board of directors. At the company's annual meeting May 9 in Wilmington, Del., the board was reduced from 23 to 15 members.

Arthur B. Lawrence was elected to fill the seat of the late Charles Smithers on the board and on the executive committee. The other 14 directors were on the board in the last year.

W. H. McFadden, F. R. Kenney, C. C. Brown, and G. R. Marland were elected vice-presidents. Robert E. Clark was elected treasurer to succeed Seward Sheldon. H. L. McCracken succeeds Mr. Clark as assistant treasurer.

Mr. McFadden, formerly executive vice-president, resigned from his operating status early this year, remaining a director, but now returns at active participation in the affairs of the company. Col. Kenney is in charge of the California operations.

In addition to the foregoing officers who also are directors, the stockholders elected the following directors: A. R. Brunker, Chicago; Vernon F. Taylor, Indiana, Pa.; Arthur Lawrence, of C. S. Smithers & Co., New York; E. N. Potter and W. C. Potter, of Potter & Co., New York; George Whitney, New York; George G. Shallenberger, vice-president, Marland Production Co.; Homer P. Snyder, New York; Chester H. Westfall, vice-president, Marland Production Co., and Walter Miller, general manager of the Marland refineries.

Warner-Quinlan Interests Buy West Texas Oil

HOUSTON, May 12.—The Warner-Quinlan Co. of Texas, formed as a subsidiary of the parent Warner-Quinlan Co. of Maine, has taken possession of three University field, Crane county, properties purchased from J. D. Collett & Eastland Oil Co., the Pecos Oil Co., and the Church & Weekly interests.

For a consideration totalling approximately $3,000,000, the Warner-Quinlan Co. obtained about 7500 barrels of semi-settled daily production from 27 wells and approximately 2,000,000 barrels of stored oil.

More than half of the current production and stored oil taken over was acquired from the Collett & Eastland Oil Co. partnership.

Principal owners of the Warner-Quinlan Co. are the Frankel Brothers of New York, who previously operated in the southwest as the Texas Unity Co., with properties in the East Texas fault zone district.

Standardization Program Takes Up Field Use

CLEVELAND, May 14

TYING in of the oil field standardization program with the work of the newly organized division of development and production engineering of the American Petroleum Institute will be carried forward at the joint meeting at Colorado Springs, Colo., June 12 to 15.

At the morning session June 14 of the engineering division the various national chairmen on standardization will present brief reports on their work.

This will be followed by a paper on "Adoption of A. P. I. Standard Equipment," by A. W. Peake, president, Dixie Oil Co., Shreveport, La.

Special committees of the engineering division will report on production technique, metallurgy of oil field equipment and other subjects which are related to the work of the standardization committees.

Plans will also be worked out at Colorado Springs for the future activity of the development and production engineering division along various lines.

A general assembly of all members of both divisions is called for June 12 at 10 A. M. at which time the address of welcome will be delivered. Directly after this, the special standardization committees will adjourn to their respective rooms and remain in session for the rest of the day, presided over by their national chairmen. The committees and their chairmen are:

Belting—A. H. Riney, Phillips Petroleum Co., Bartlesville, Okla.; Cable Drilling Tool Joints—Thomas Fleming, Jr., Oil Well Supply Co., Pittsburgh, Pa.; Rigs and Derricks—W. W. Fondren, Humble Oil & Refining Co., Houston, Tex.; Oil Country Tubular Goods—Charles Fitzgerald, Pure Oil Pipe Line Co. of Texas, Dallas; Rig Irons—H. J. Lockhart; Rotary Drilling Equipment—Ernest J. Nicklos, The Texas Co., Tulsa; Wire Rope and Manila Cordage—C. C. Scharpenberg, Standard Oil Co. of California, Bakersfield, Calif.; Pumping Equipment and Engines—T. E. Swigart, Shell Co. of California, Los Angeles; and Steel Tanks for Oil Storage—Ralph J. Reed, Union Oil Co. of California, Los Angeles.

The boiler committee will not hold formal sessions at this time, according to S. J. Dickey, General Petroleum Corp., Los Angeles, national chairman.

The evening session of June 12 will be devoted to the correlating committee on gages and gaging practice, of which H. W. Fletcher, Hughes Tool Co., Houston, is national chairman.

The morning session of June 13 will be a continuation of standardization committee meetings, which will be concluded in the afternoon with a joint meeting of the committee of the board of directors and the general committee on standardization.

June 14 and 15 are scheduled for the division of development and production engineering, the former day being taken up mostly with reports of the various committees and future plans.

The morning session of June 15 will open with an address on "Notes on Operating Practice in the Rocky Mountain District," which will be delivered by Fred E. Wood, Midwest Refining Co., Casper, Wyo. Other addresses and speakers during that day will be:

"Methods of Effecting Gas Conservation and Increased Recovery Efficiency in Ventura Field," by T. E. Swigart, Shell Co. of California, Los Angeles;

"Increased Recovery Efficiency and Its Effect on Ultimate Production," by H. N. Marsh, General Petroleum Corp. of California, Los Angeles;

"Absorption and Its Effect on Gas Production and Injection," by Frank E. E. Germann, University of Colorado;

"Drilling and Production Methods in West Texas Fields," by H. J. Vance, Marland Oil Co., Ponca City, Okla.;

"Deep Cable Tool Drilling Practice in the Eastern Fields," by J. F. Robinson, Peoples Gas Co., and J. G. Montgomery, Jr., United Natural Gas Co.

A golf tournament, which will include members of both divisions, followed by a golf dinner in the evening, will conclude the meeting on June 16.

Supply Men Organize

TULSA, May 12.—A temporary organization of the proposed Natural Gasoline Supply Men's Association will be formed at a meeting on May 15 in the offices of the Natural Gasoline Association of America. The temporary officers elected at that meeting will serve until May 22 when a permanent organization is to be formed as an auxiliary of the Natural Gasoline Association.

At a preliminary meeting May 3 it was found that 22 supply companies have joined the organization and that at least 35 probably will come within the next week. Committees were appointed to plan entertainment which the group proposes to furnish the natural gasoline manufacturers at their convention to be held in Tulsa May 22 to 24.

Two-Year Burner Oil Contracts Made by Standard (N. J.)

NEW YORK, May 12

TO STIMULATE the growth of oil burners for domestic heating, the Standard Oil Co. of New Jersey, and its affiliated Standard Oil Co. of Louisiana are now making two-year contracts with householders for their fuel supply.

The price named in these contracts is the present market figure—about 10 cents a gallon to the consumer—as maximum and he is given the benefit of any reductions during the entire contract period. The contracts run to May 1, 1930.

The company believes this step will encourage the installation of domestic burners and help create a stable market for oil for heating. Ten times the present number of domestic oil burners in use would give a consumption equal to that demanded by the present automobile industry, it is pointed out.

The following article on oil for domestic heating appeared in the April issue of *The Lamp*, the Standard of New Jersey's official publication, in connection with the announcement of the two-year contracts. It was written by Frank A. Howard, vice president of the Standard Oil Development Co. and Dr. R. T. Haslam, of the same company.

* * *

THE Standard Oil Company of New Jersey and the Standard Oil Company of Louisiana are now offering domestic fuel oil on a two-year contract basis.

Sales will be made at a fixed price covering the householders' requirements for the next two heating seasons, i.e., until May 1, 1930. This step has been taken in furtherance of the policy which the Company adopted two years ago of encouraging the use of oil for domestic heating purposes.

During the past eight years this country has witnessed a development that bids fair to revolutionize home-heating to an extent comparable with the change brought about in transportation methods by the automobile.

Previously, homes in communities favored with low-cost natural gas were heated by this ideal fuel during the winter months, but in homes otherwise situated coal and wood—used in essentially the same manner as during the previous thirty years—were the universal domestic fuels.

The only real change was the general substitution of central heating plants, "furnaces," for the numerous stoves, grates and Latrobes which the previous generation used. This step concentrated the dirt and labor in one room in the cellar but left the total burden just what it had been.

The concentration of heating equipment into one central unit makes automatic regulation feasible and this will be the outstanding tendency in home-heating during the next few years.

Since 1920 the use of distillate oils and manufactured gas for domestic heating has steadily increased, until today there are in the United States more than 680,000 homes heated by oil and 118,000 homes heated by manufactured gas. During the past three years the growth in the use of distillate fuel oils for home-heating has been rapid, the quantity so used doubling in volume during this period.

The importance of this field to the oil industry is apparent when it is realized that one domestic oil burner, on the average, uses per year four times the volume of liquid fuel consumed by one automobile. The installation of ten times the number of domestic oil burners even now in use will give a consumption of petroleum equal to that demanded by the present automobile industry.

The pioneer domestic burners were simple in design and were not automatic in action, but the tendency during recent years has been towards automatic, electric-motored, fully-controlled burners equipped with adequate safety devices. Many makes of oil burners suitable for domestic use are on the market, and the dependability of many of them has been proved by several years of satisfactory performance.

An ever-increasing number of families are now enjoying the pleasures and benefits of automatic home-heating, obtaining this result with mechanism almost free from attention, yet safe, dependable, clean, and at a cost that is reasonable, considering the service rendered.

At its inception and during the early years of its growth the domestic oil burner industry progressed without orientation. The early manufacturers had only one dominating thought—that they must turn out an oil-burning device of negligible cost, and that to sell this device they must persuade the public to believe that oil fuel was cheaper than coal.

The oil industry, with its attention focused on the problem of providing, at a reasonable cost, a sufficient quantity of gasoline to care for the growing automobile demand, found it difficult to urge upon the public the consumption of refined petroleum products suitable for gasoline manufacture with the assurance that an adequate supply would always be available at a cost below that for an equivalent heating value in coal.

During this period the public was receptive, interested in oil heating, and actually absorbed several hundred thousand of the simpler and more primitive types of oil burners, but, on the whole, sales were confined to the householder in an exceptional position.

The oil-burner industry definitely passed out of this phase about two years ago. The fully-automatic type of oil burner, designed to burn semi-refined products, of lower cost than kerosene, delivered in bulk and in large quantities by tank-wagon, became the dominant type, and was recognized as the only type suitable for general use.

Sales were not made on a basis that the cost of oil heat would be less than coal, but on an entirely different basis, i.e., the basis of true economic value. In this sense, domestic oil heating is not a competitor of coal heating but of gas heating. Only by oil or by gas is it possible to obtain clean, trouble-free, automatic heating, which dispenses with all necessity for manual labor or skilled attention.

Although the first cost of the installation is relatively high, it is to be hoped that increased production and standardization of design will soon result in substantial reduction of this cost. Nevertheless, the amortization of the investment required, when added to the small maintenance charges and the cost of the oil consumed, gives a total net cost for oil heating considerably below that obtainable with manufactured gas in the country as a whole.

The net economic worth of oil heating is now recognized as justifying a considerably higher cost per unit of heat value for oil than for coal. With this picture before it, the oil industry has had to answer only one question: Is there reasonable assurance that oil may be provided in the quantities required for the expected expansion of the domestic heating market, at a price level below its economic value for this purpose?

There has been no hesitation in answering this question affirmatively. Oil as a fuel for domestic heating under the conditions under which this market is now being expanded, is going into a legitimate field of high utility in which its only true competitor is manufactured gas. It is difficult to assume with exactness what its price limit in this field will be, but it is clear that the limit is far above any price which this grade of product has brought even during those brief periods in the phenomenal expansion of the gasoline market when prices have been far above current levels.

Cutting Costs in Steam Raising, Distillation and Filtering

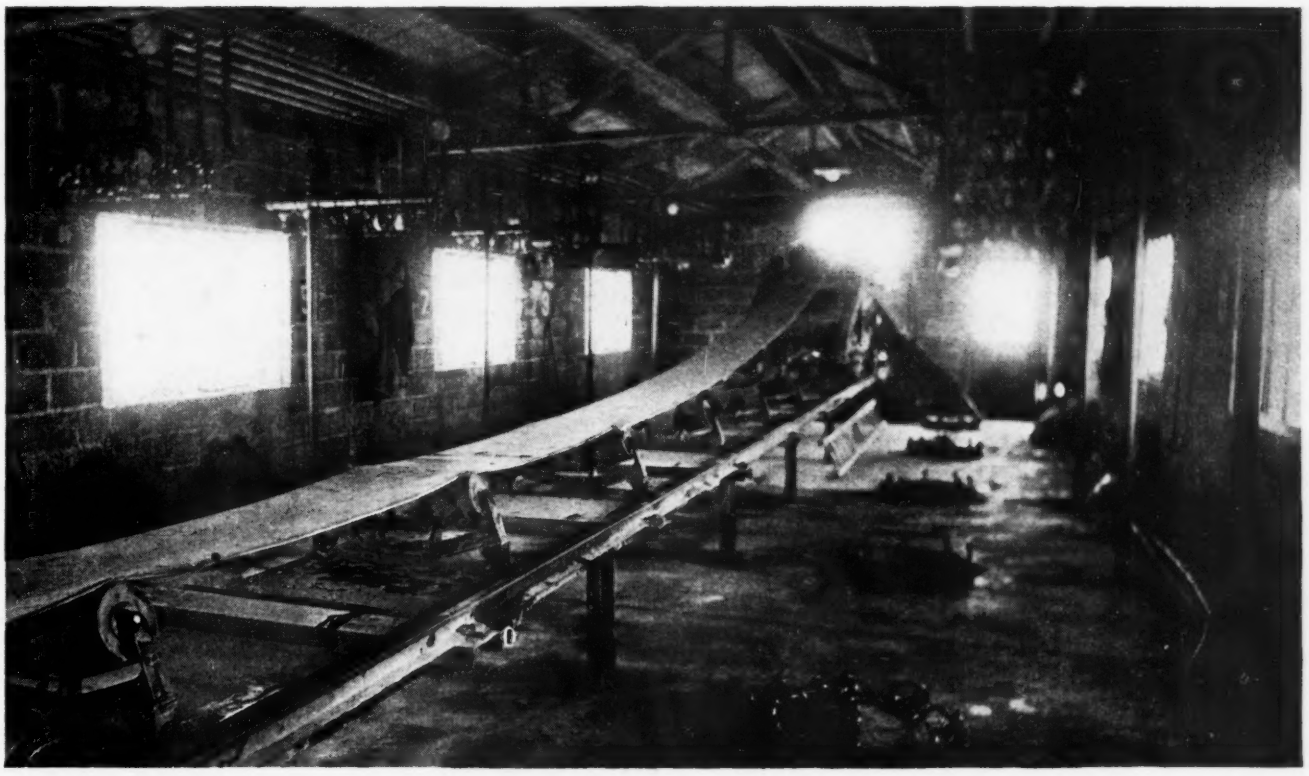


Fig. 1—Charging floor of the Seneca filter house. Tops of five filters are seen at right, belt conveyor in center, tripper at rear and manifold system and pressure gages at left above the windows

By Paul Truesdell
N. P. N. STAFF WRITER

Article 3

FOR almost 50 years Pennsylvania refiners have been filtering lubricating oils and every year they have learned how to do it better.

Late knowledge of the filtering art, as applied to Pennsylvania oils, is embodied in the new filter house at the refinery of the Seneca Oil Works at Warren. All the new equipment is designed for filtering by the percolation method. The filter house was designed by G. G. Brockway, son of George P. Brockway, president and general manager of the company.

A great deal has been learned about percolating filtering methods the last three or four years. One of the most important innovations was the adaptation to the reclaiming of used fuller's earth of multiple hearth furnaces, which permit of 30 or more reburns before the clay is finally thrown away.

Much has been learned also about other phases of clay handling. Engineers of the refineries and engineers employed by concerns manufacturing automatic conveying machinery have put their heads together and worked out systems for mechanical handling of fuller's earth that have almost become standard.

In many plants, nowadays, handling of fuller's earth by manpower has been eliminated altogether, or at least reduced to a minimum.

The features of the new Seneca filter plant include:

A substantial fire proof building designed especially to house the filters, the tanks, the clay handling equipment and the furnace.

A Herreshoff clay roasting furnace.

Motor driven conveyors of both the belt and the bucket types to handle the clay throughout the plant.

Means for regulating the temperature of each individual filter while the filtering is going on.

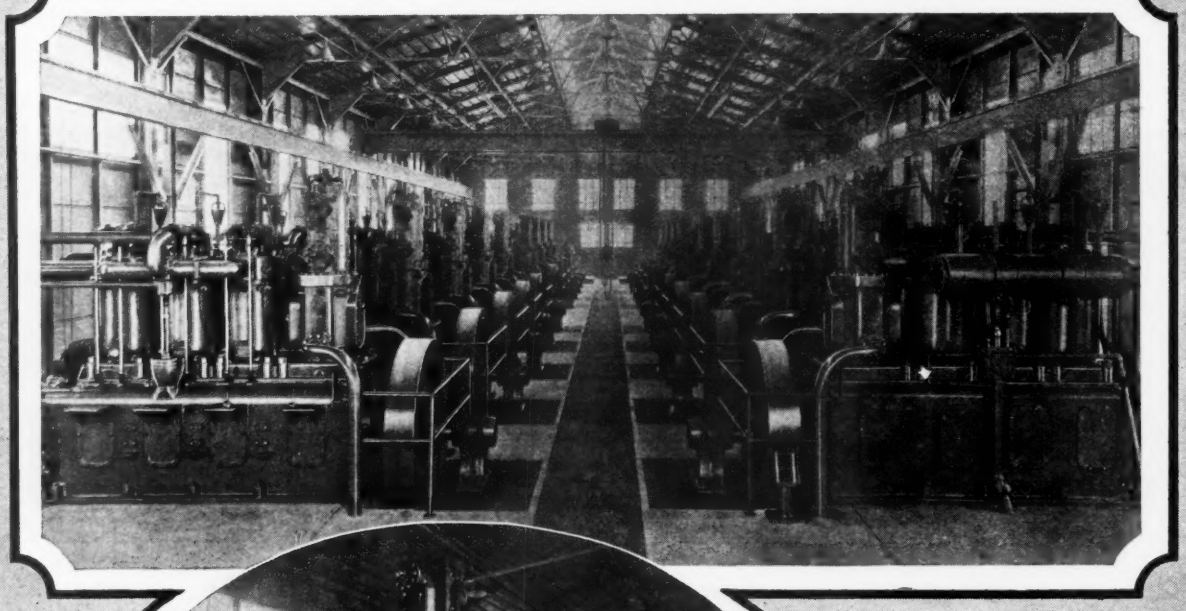
Manifolding that gives the utmost flexibility of operation to the filters by permitting them to be operated as units or in series, and to handle a great variety of oils.

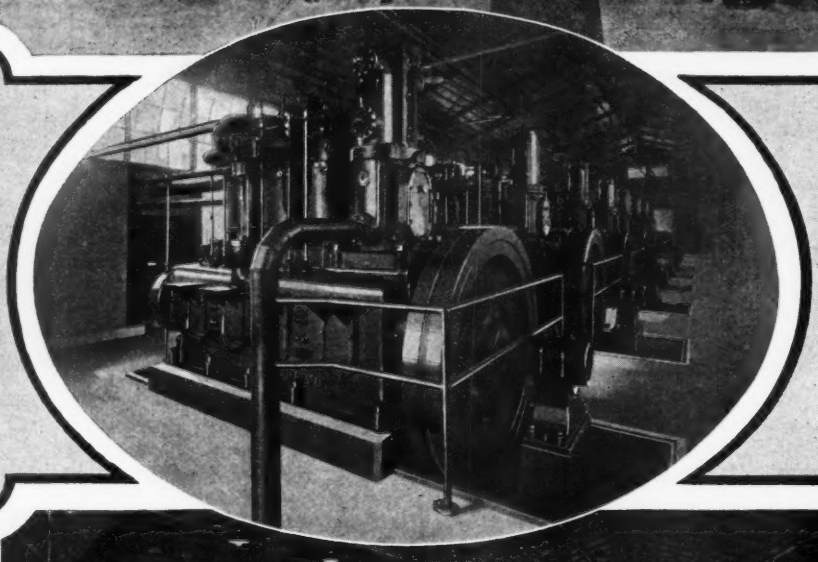
Heat conservation scheme by which the cylinder stock on the way to the filters is heated to temperature by exhaust steam.

Heat conservation scheme by which exhaust steam from steaming filters is used to partially distill off the wash naphtha used in the filters. The steam was formerly blown into the air and its heat wasted. As a further step it is possible that this steam later will be condensed and saved for boiler feed water.

About 30 per cent of the boiler feed at the Seneca is distilled water recovered from the steam used in the stills.

THE filter house proper and the furnace house are two buildings but they adjoin and communicate with each other. The main structure consists of a tall building with a lean-to on one side, as shown in an accompanying drawing. The tall building houses the filters, the lean-to the stock tanks and run down tanks. The furnace building, just big enough to accommodate the furnace and give the workers room to move around it, is built on the end of the main structure. It is 30 by 30 on the ground and 35 feet high. The filter house proper is 32 feet high, 57 feet long and 42 feet wide, these being over-all measurements. The main filter house has two stories. The top floor, shown in Fig. 1 at the head of this article, is the filter charging floor. The bot-





Above — the Edna Station, with 24 Hope Compressors and 2 Hope Engines.

To the Left — the Refugio Station, with 8 Hope Verticals and 2 Hope Engines.

Below — the Waskom Station, with 28 Hope Compressors and 3 Hope Engine units.

The Houston Gulf Gas System

Relies Upon

64 HOPE VERTICAL GAS COMPRESSORS

for the Continuity of its Service

A great public utility corporation must not fail in the service it renders. There must be no failure to supply the commodity it sells. Its investment, as well as the good will of the public it serves, must be safeguarded by every tested and approved means.

The Houston Gulf Gas System draws from unlimited sources of gas supply. But the unfailing delivery of that gas to the consumer depends upon the reliability of the compressors, station equipment and pipe lines.

Hope Vertical Gas Compressors and Engines, and Hope-built Pipe Lines are successfully carrying the burden of this heavy responsibility for the Houston Gulf Gas System.

64 Hope Vertical Gas Compressors and 8 Hope Vertical Gas Engine-Generators, in four stations, comprise the equipment upon which the Houston Gulf Gas System relies.

The 36 Hope Compressors in the Edna, Refugio and Markham Stations, have been operating without trouble or interruption of service since January, 1926. The 28 Hope Verticals in the Waskom Station went into service in December, 1927, and have operated continuously since. And close to 600 miles of Hope-built pipe lines connect these stations to field and market.

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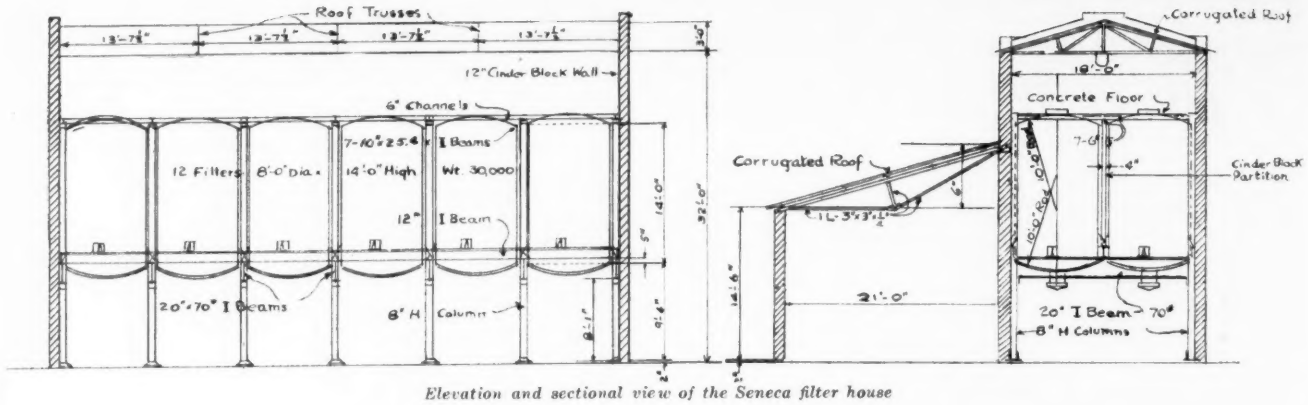


Elevation and sectional view of the Seneca filter house

tom outlets from the filters are on the ground floor.

FIGURE 2 shows the lean-to part of the filter house. The tanks on the ground at the right are the run-down tanks, into which the oil flows from the filters. The square tanks above them in the upper tier, dimly seen in the center background, are the stock tanks from which the oils to be filtered are pumped onto the filters.

Part of the manifold system is shown in front of the tanks and the pumps that charge the oil to the filters are shown on the left.

The buildings are of cinder concrete block, with steel sash wire glass windows and transite roof supported on steel girders, and concrete floors. An idea of the construction is shown in Figure 1.

The filters, which are 12 by 14 feet in size, with a capacity of 12 tons of clay, are carried on I beams supported on steel H columns, so that the load is carried entirely independent of the walls of the building. Each filter occupies its own compartment with tile walls as shown in Figure 3. Steam coils are installed in each of these compartments so that the filters may be kept uniformly at whatever temperature is desired while the filtering is going on.

As shown in the photograph, the filters are ranged in two rows along the length of the building. Five manheads are visible in the photograph. There is one more manhead on the right side of the house and likewise a row of six on the other side, hidden in the photograph.

A BELT conveyor is installed lengthwise down the middle of the building and on either side of it is a rail forming a track on which travels the "tripper" dimly shown in the background of the picture. The "tripper" is really a traveling steel bin with a spout on each side. Each spout reaches to the filling manhead of each filter as the "tripper" is shoved along the track opposite the filters.

The belt conveyor, fed by a bucket elevator coming up from the furnace, discharges its load of clay continuously into the "tripper," which in turn charges it through the spout into any desired filter.

The operation of the belt-conveyor is synchronized with that of the bucket elevator, both being operated by the same motor.

There is another belt conveyor-bucket elevator installation on the ground floor of the filter house.

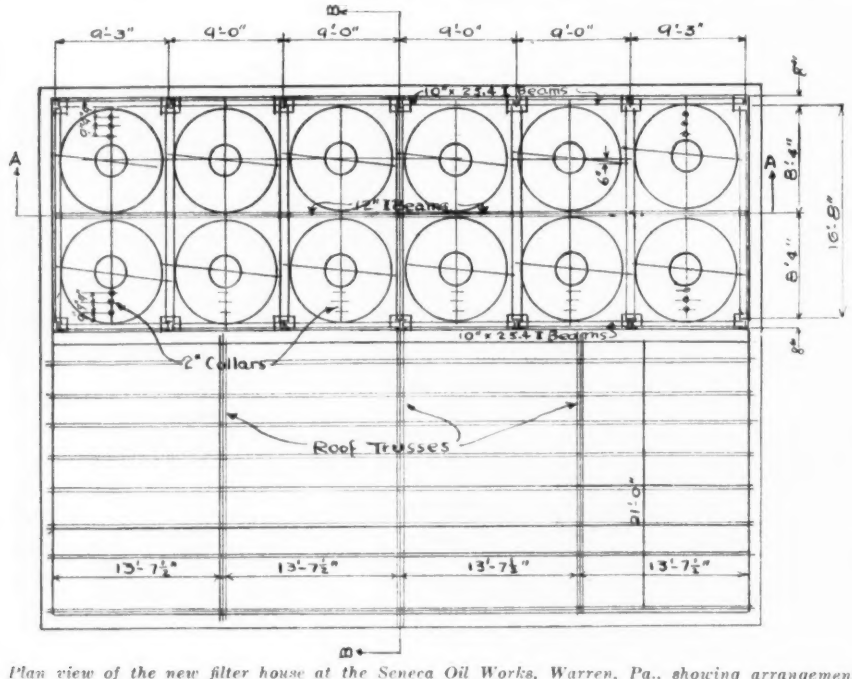
Fuller's earth goes to work as soon as it is received at the Seneca plant and there is very little clay storage space, the operation of the furnace being dovetailed into the operating schedule of the filters. The new earth from the cars is dumped into a pickup pit, from which it is carried by a bucket elevator into a small bin above the furnace. It is given a light burn.

PASSING out of the lowest hearth of the furnace, the earth drops into a concrete pit from which it is picked up by the elevator already referred to, inside the furnace building and carried to the top.

The earth is well cooled by the time it reaches the top of the building and is discharged through a chute upon the belt of the conveyor on the charging floor.

In dumping the filters, a spout is attached to the outlet manhead which reaches to the belt conveyor in the middle of the room. This conveyor is synchronized with the other bucket elevator, both being run by the same motor. The clay is discharged by the spout from the filter onto the belt and carried to a pit where it is picked up by the elevator and carried to the elevated bin above the furnace, from whence it gravitates onto the topmost hearth of the furnace and makes its way through, following the same course as new earth coming into the plant.

Like most percolating filter plants, the Seneca filters operate under pressure. This pressure varies in practice from 15 to 35 pounds in most cases, although a pressure as high as 40 pounds can be carried. Pressure is built up by choking down the size of the stream coming from the filter, the size of the stream varying, of course, with the viscosity of the



Plan view of the new filter house at the Seneca Oil Works, Warren, Pa., showing arrangement of the filters

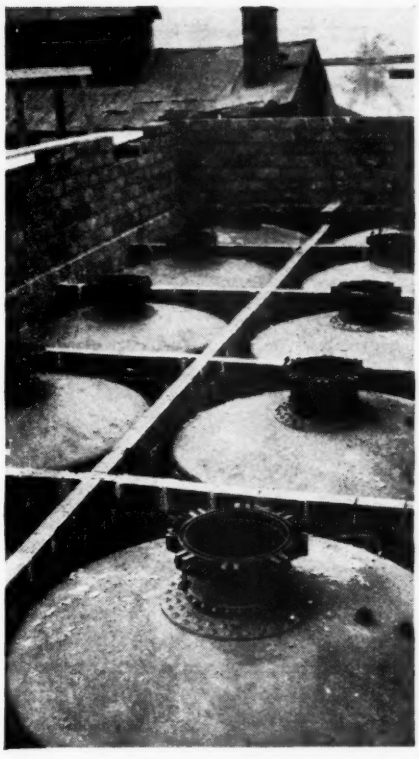


Fig. 3.—Showing how the filters of the Seneca plant are placed, each in its own tile-walled compartment

stock being filtered and the pressure it is desired to carry.

An idea of the completeness and extent of the manifold system on the charging floor of the filter house is given in Figure 1. The rest of the manifold system is shown in Figure 2.

In the first place, the oil manifold is so arranged that any one of several grades of neutrals or stocks can be charged to the filters. The entire battery of filters can be hooked up to run in series or any two or more can be so hooked up. Provision is made for filtering either upward or downward although all filtering at present is done downward.

Besides the oil lines, each filter has its own steam line, air line and wash naphtha line. Each filter is fitted with a pressure gage. The gages are shown in Figure 1, high up at the left above each manifold. On the way to the filters, cylinder stock is run through a heat exchanger countercurrent to exhaust steam on the way back to the boiler house and is heated to about 150 degrees Fahr.

One of the steps in cleaning a filter, of course, is to steam it for several hours with live steam. It is the practice at many plants to blow this steam into the air after it has passed through the filter, which means a considerable loss of heat. Means for saving this heat and making it work are now being worked out at the Seneca plant, as shown in Figure 4.

At the right in this picture are two tanks removed from old tank

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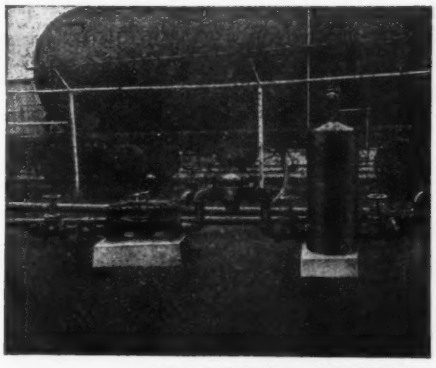

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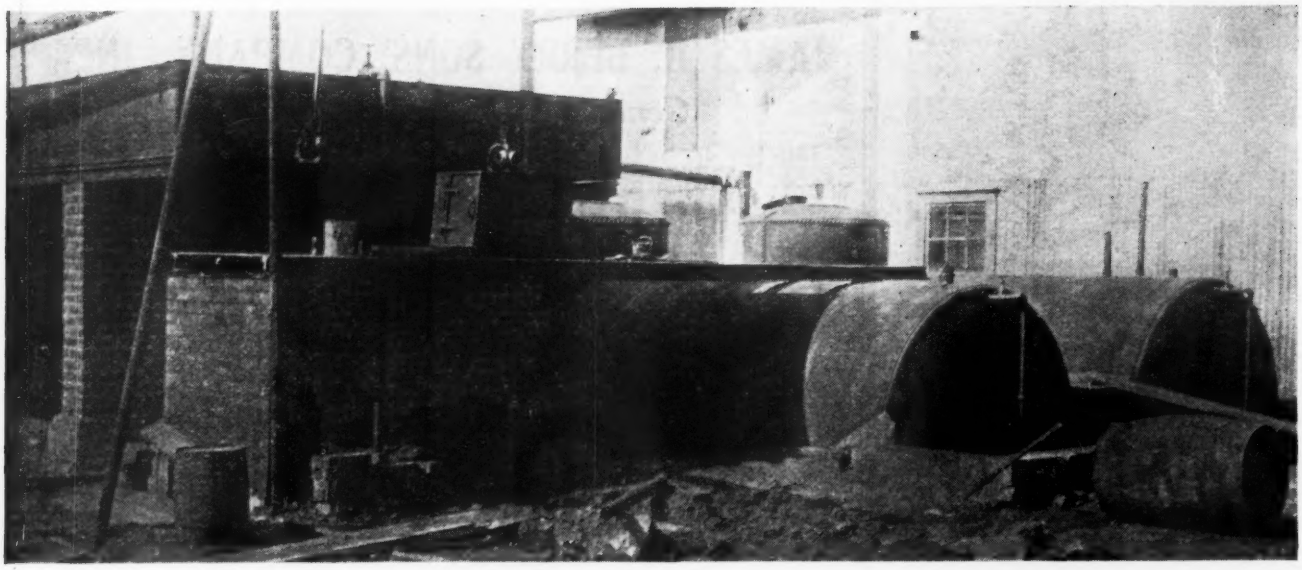

Fig. 4—Old tank car tanks being converted into steam stills so the waste steam can be used in cleaning up wash naphtha from the Seneca filters

cars, set in a concrete pit. The domes are converted into vapor domes by the insertion of flanges and vapor lines. Steam coils have been installed in the tanks. At the left, elevated, is shown a shallow condenser in which regular cooling coils will be immersed in water. When completed these will be regular steam stills of the sort formerly seen at many plants.

It is planned to run the wash naphtha from the filters into these steam stills and clean it up, or at least partially clean it up, with the steam from the filters.

This wash naphtha, of course, becomes contaminated with the stock or neutral oil which has been handled in the filter being washed and before it can be used again, the naphtha must be removed from the impurities by distillation. It has been customary to perform this operation entirely in a fire still at the expense of coal. Now at least part of the work will be done with the steam that heretofore has been wasted.

LOS ANGELES, May 14.—The Hydrocarbon Apparatus Inc., has recently been formed in Los Angeles with offices at 405 South Hill Street, to manufacture and sell equipment for the producer, refiner and natural gasoline manufacturer. Dr. E. C. R. Weisgerber, oil and gas engineer, is president, with W. Webb Wilson of the Wilson Oil Tool Corp., vice president. H. S. Botsford is secretary-treasurer.

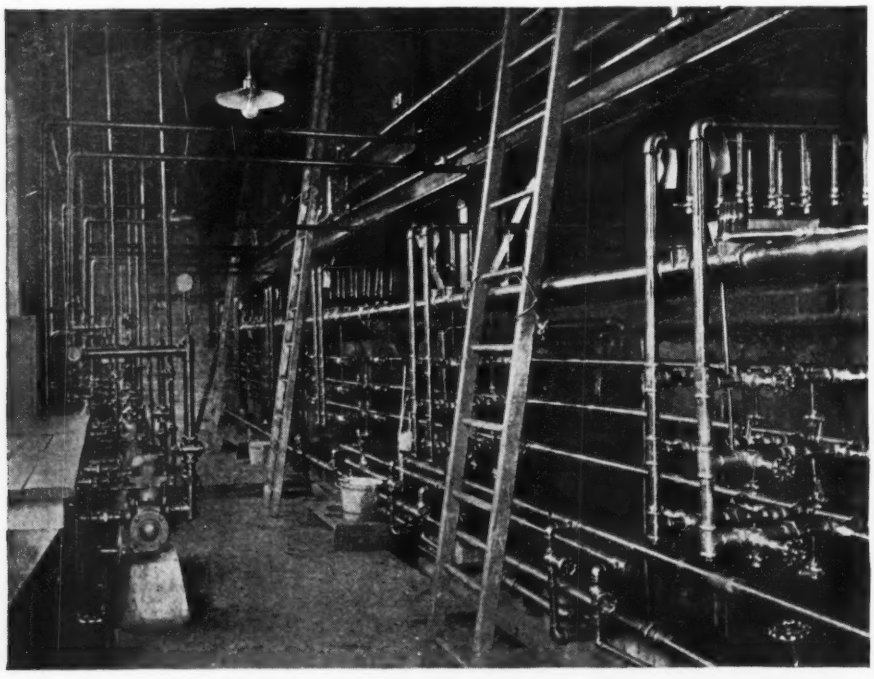

Fig. 2—Stock tanks and rundown tanks in the Seneca filter house. The tanks on the ground floor receive the oil from the filters and those on the balcony, dimly seen, are the tanks from which the oil to be treated is pumped onto the filters. Pumps that charge the filters are seen at the left of the picture

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Philadelphia, Pa.—Station Realty Co., several service stations.

New London, Wis.—Standard Oil Co. of Indiana, filling station.

Sioux Falls, S. D.—H. C. Hendrickson, filling station.

Oskaloosa, Ia.—Roxana Petroleum Corp., filling station.

Mt. Vernon, Ia.—Jones & Moffett, filling station.

Leeds, N. D.—E. S. Wardrope, filling station.

Fergus Falls, Minn.—Otter Tail Cooperative Oil Co., Inc., filling station.

Grand Forks, N. D.—George E. Duis, filling station.

Groton, S. D.—High Grade Oil Co., filling station.

Portsmouth, O.—W. W. Bauer, filling station.

Lakeview, O.—Coates Bros., filling station.

Willshire, O.—Rex Hardware Co., filling station.

Clyde, O.—Chris Nieman, filling station.

Jackson, O.—Refiners Oil Co., filling station.

McConnellsville, O.—Neff & Head, filling station.

Dalton, Ga.—Gulf Refining Co., filling station.

Midland, Pa.—Waverly Oil Works Co., Pittsburgh, filling station.

Wellington, O.—C. A. Gott, filling station.

Painesville, O.—Lake County Oil Co., filling station.

New Philadelphia, O.—O. U. Latto, filling station.

Mt. Gilead, O.—Roy Hart, filling station.

Fairfield, Ia.—Fred McClain, filling station.

New York, N. Y.—A. W. Palumbo, filling station.

Britt, Ia.—R. E. Duffis, filling station.

Mason City, O.—C. T. Meredith, filling station.

Hillsboro, O.—Louisiana Oil Refining Corp., filling station.

Sabula, Ia.—Standard Oil Co. of Indiana, filling station.

Winona, Minn.—Henry Monk, filling station.

Superior, Wis.—Zenith Gasoline Co., filling station.

Stockholm, Wis.—Badger Oil Co., filling station.

Spring Valley, Wis.—Will Holverson, filling station.

Milnor, N. D.—H. H. Berg, filling station.

Little Falls, Minn.—W. N. Hansen, filling station.

Finlayson, Minn.—Northwestern Oil Co., filling station.

East Grand Forks, Minn.—Sullivan Bros., filling station.

Stratford, Wis.—Fenhaus & Steidinger, filling station.

Oshkosh, Wis.—Standard Oil Co. of Indiana, filling station.

Wakonda, S. D.—Joe and Roy Hewitt, filling station.

Fargo, N. D.—W. R. Haggart, The Texas Co., filling station.

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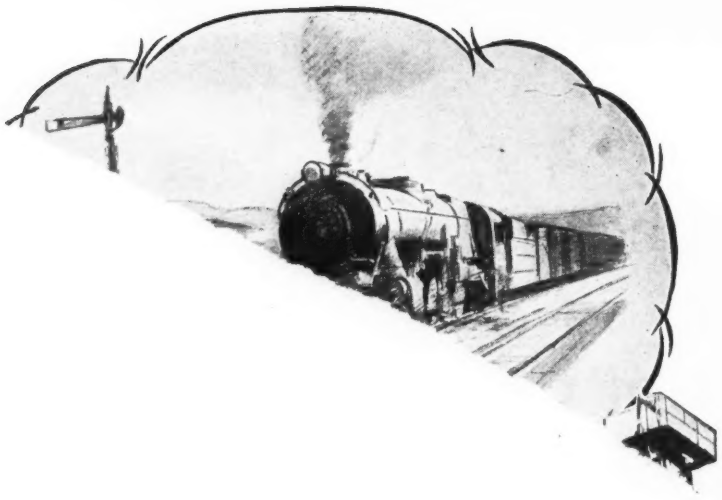

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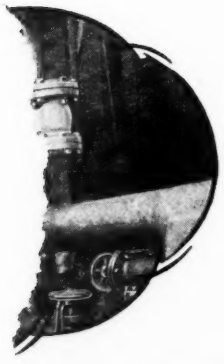

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A Laboratory Method of Determining Vapor Pressure of Gasoline

By G. G. Oberfell*
R. C. Alden*
and
H. Hepp*

IN THE case of commercial gasolines the definition of vapor pressure is complicated by the invariable presence of fixed gases. It is extremely difficult to liberate the fixed gases without affecting the composition of the remaining liquid. In addition, since all commercial gasolines contain some fixed gases, it is an open question whether determinations of the vapor pressure of gasolines should or should not include the pressure effect of the fixed gases.

Theoretically the vapor pressure of complex liquid mixtures such as gasoline is the pressure of the vapors evolved from the liquid when an infinitely small amount of evaporation has occurred. This definition does not consider the pressure effect of fixed gases as a part of the vapor pressure of the liquid. At present such vapor pressure measurements can be made only approximately, while in the case of commercial gasolines one is confronted with an ever varying content of fixed gases, primarily air.

For practical purposes the vapor pressure of commercial gasoline may be defined as the pressure of the vapors on the sides of a closed container when a relatively small amount of vapor space is over the liquid. Because of the exceedingly variable nature of the fixed gases present in samples of commercial gasoline and the practical application for which vapor pressures are made the pressure effect of such fixed gases should not, in most cases, be seriously considered as being part of the vapor pressure of the gasoline.

The vapor pressure of commercial gasoline has also been defined as the vapor pressure of the gasoline as calculated by means of Raoult's Law from its composition analysis when fixed gases present are considered as being propane. (30) [30 refers to bibliography at the end of this article.]

It is apparent that a satisfactory definition of the vapor pressure of gasoline is exceedingly difficult. Probably the most serviceable definition for the vapor pressure of gasoline is to define the method by which it is determined.

Vapor Pressure Methods

THE classical method of introducing a portion of liquid over the mercury in a barometer tube is not applicable to the determination of the vapor pressure of a complex mixture such as gasoline because the gasoline changes in composition and consequently in vapor pressure, when a portion of it evaporates. Gases dissolved in the gasoline also give rise to serious errors in this type of apparatus.

There have been a number of methods described for determining the vapor pressure of gasoline in the presence of fixed gases. In general these methods fall under three heads; the static, dynamic and analytical. In the static methods the gasoline is usually introduced into a closed space and the pressure measured after the system has come to equilibrium. The dynamic method consists essentially in passing a known volume of air or sparingly soluble gas through or over the liquid whose vapor pressure is to be determined and measuring the amount of substance carried over with the gas. The vapor pressure is then readily calculated from Dalton's Law of Partial Pressures. The analytical method consists in determining the composition of the liquid and calculating the vapor pressure of the mixture from the vapor pressure of its components.

The static method has been most widely used for the determination of the vapor pressure of natural gasoline. The more important modifications of the static method are listed below: [Figures refer to bibliography at end of article.]

Present Bureau of Explosives Method ([1]) ([2]) ([4]).
Anderson Method ([3]) ([5]).
Browne (Rhodes McConnell) Method ([25]).
Reid Method ([26]).
Davis Method ([28]) ([27]).
Beistle-Prather Method ([28]).

THE dynamic method is better adapted to the determination of the vapor pressure of pure substances than it is to a complex mixture such as gasoline. There have been, however, a number of procedures suggested for employing this method. A list of references on these methods is given at the end of this paper. The analytical method is chiefly valuable as a means of determining which of the many methods for measuring the vapor pressure of gasoline actually approximates its vapor pressure as defined above. It cannot be assumed that because a given vapor pressure method will check the known vapor pressures of pure substances it will give the true vapor pressure of complex mixtures, such as gasoline.

A fourth method which is particularly valuable on samples of low vapor pressure, is to determine the initial boiling point of the liquid. The vapor pressure at any other temperature may then be calculated by means of Trouton's rule and Clapeyron's equation. This method gives only a rough approximation of the vapor pressure, the accuracy depending primarily upon the precision with which the initial boiling point has been determined. The writers have

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Mr. Oberfell, director of research of the Phillips Petroleum Co., is one of the country's authorities on natural gasoline technology. He prepared this paper for presentation before the meeting of the Association of Natural Gasoline Manufacturers at Tulsa May 22 and 23.

Desiring to have the paper in the hands of the technologists before the meeting so they would come to the meeting prepared to discuss it, Mr. Oberfell gave it to NATIONAL PETROLEUM NEWS for exclusive publication.

*Research department, Phillips Petroleum Co.

(a) Natural Gasoline—Oberfell and Alden, p. 96.

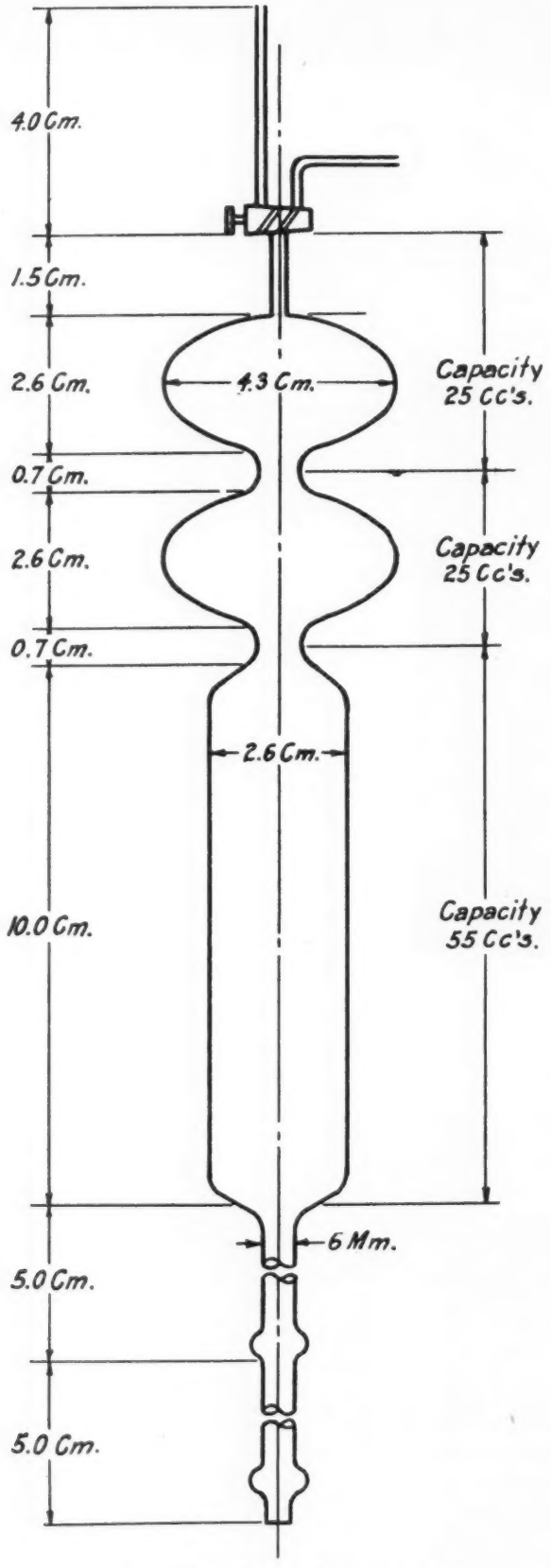

Fig. 1—Vapor Pressure Apparatus Burette

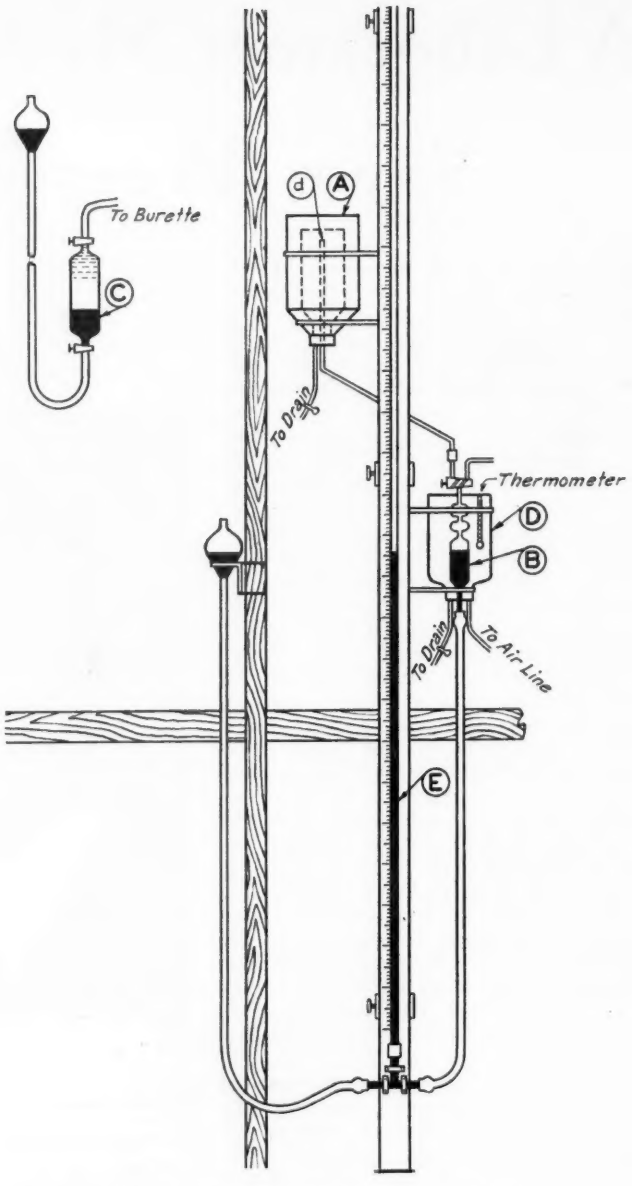

Fig. 2.—Vapor Pressure Apparatus Assembly

had occasion to conduct weathering loss tests (a) on a large number of samples of natural gasoline.

In these tests the weathering loss was plotted as abscissa against the temperature of the gasoline. The initial boiling point was obtained by extrapolation of the uniform portion of the weathering loss curve to the ordinate axis. While these results are fairly satisfactory, as shown in Figure 3, it is probable that a careful standardization of the method of determining the initial boiling point would make it possible to more accurately valuate the vapor pressures of natural gasoline by means of the weathering loss test. The vapor pressures of natural gasoline have been calculated from the initial boiling point determined by the standard A.S.T.M. distillation test. The results show that there is no definite relation between the Engler initial boiling point and vapor pressure as shown in Figure 4. However, the Engler initial boiling point determined by placing the thermometer in the boiling liquid showed a very good relation between initial boiling point and vapor pressure for hydrocarbon mixtures of narrow boiling point range and low vapor pressure.

Preliminary Investigation

IT HAS been shown that there is a very good agreement between the vapor pressures of gasolines as calculated from the composition, and the Beistle-Prather and Reid vapor pressure methods. ([30]) It was with a view of determining the magnitude

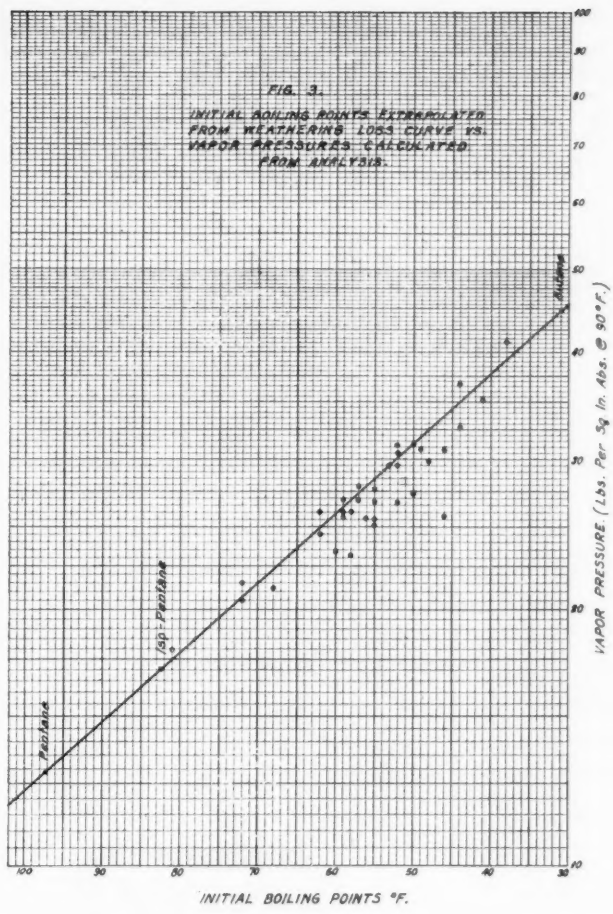
FIG. 3.
INITIAL BOILING POINTS EXTRAPOLATED FROM WEATHERING LOSS CURVE VS. VAPOR PRESSURES CALCULATED FROM ANALYSIS.
Butane
Iso-Pentane
Pentane
VAPOR PRESSURE (Lbs. Per Sq. In. Abs. @ 90°F.)
INITIAL BOILING POINTS °F.

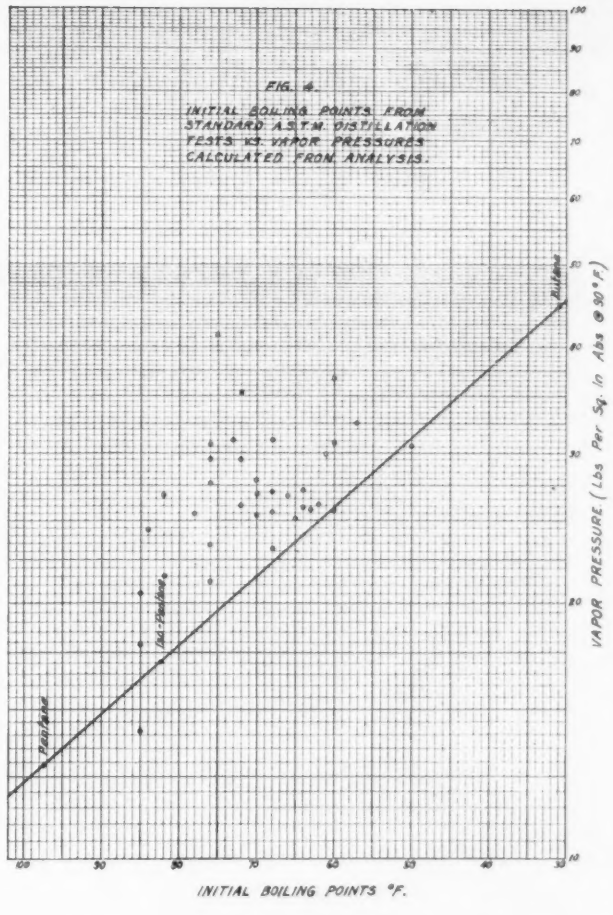
FIG. 4.
INITIAL BOILING POINTS FROM STANDARD A.S.T.M. DISTILLATION TESTS VS. VAPOR PRESSURES CALCULATED FROM ANALYSIS.
Butane
Iso-Pentane
Pentane
VAPOR PRESSURE (Lbs Per Sq. In Abs @ 90°F.)
INITIAL BOILING POINTS °F.

of the effect on the vapor pressure of the variables in the Beistle-Prather vapor pressure method that this investigation was undertaken. These variables are the vapor-liquid volume ratios when the two pressure readings are taken, the amount of fixed gases present in the liquid and the amount of water present.

1. Effect of Vapor-Liquid Volume Ratio

In order to determine the effect of vapor-liquid volume ratios on the vapor pressure, two series of tests were made. In the first series a standard Beistle-Prather bomb (²) was used, readings being taken at 100 and 300 c.c. outages as well as the 200 and 400 c.c. outages as is recommended in the standard procedure. The samples used in these tests were a "butane-free" natural gasoline from which most of the air and fixed gases had been removed by fractional distillation, a thirty per cent blend of butane and seventy per cent "butane-free" natural gasoline, and a forty per cent blend of butane and sixty per cent "butane-free" natural gasoline. The results obtained are given in Table 1.

Note: The column headings give the vapor space over the gasoline when the two pressure readings were taken from which the vapor pressures given in that column are calculated. This was done by use of the following equation:

$$\text{Vapor pressure} = \frac{V_2P_2 - V_1P_1}{V_2 - V_1}$$

where V_1 and V_2 are the first and second vapor volumes and P_1 and P_2 the corresponding pressure readings.

The column headed "Std. Beistle" gives results of tests run where the liquid was drawn down to the 200 cubic centimeter mark for the first pressure reading and to the 400 cubic centimeter mark for the second pressure reading. No readings were taken at the 100-300 cubic centimeter marks.

It will be noted that in the air-free sample the vapor pressures remain about the same throughout, while in the other two samples there is considerable variation. This indicates that evaporation, even when the gas-liquid volume ratio is as high as three to one, does not affect the vapor pressure of a fairly well fractionated natural gasoline appreciably. It also appears that change in the vapor pressure due to varying vapor space is due principally to air coming out of solution between readings. This is further evidenced by the fact that where the average vapor space is the same (the 100-400 and 200-300 readings) the vapor pressures check closely.

For the second series of tests a large bomb similar to the Beistle-Prather apparatus was built. This bomb was 24 inches long and 2 inches in diameter, with a capacity of 1450 cubic centimeters. The gauge glass was calibrated at volume intervals of 100 cubic centimeters.

The results of a test made on the sample of air-free butane-free gasoline used in the previous tests are given in Table 2. This shows that the effect of evaporation on vapor pressure is small.

Table 1

Effect of Variable Vapor Space on Vapor Pressure with the Beistle-Prather Method Using Standard Bomb

(Vapor Pressures Lbs. Per Sq. In. Abs.)

Sample	Temp. F.°	100-200	100-300	100-400	200-300	200-400	300-400	Std. Beistle	Reid	Calc.
Air-Free	90	9.2	8.9	8.8	8.8	8.9	8.7	8.3	.....	.....
Air-Free	90	8.9	8.7	8.7	8.5	8.6	8.7	8.4	.....	.....
30% Blend	90	23.8	23.3	22.4	22.7	21.9	21.1	.....	20.6	21.4
30% Blend	90	.....	.....	.....	23.3	22.2	21.1	21.5	20.2	.....
30% Blend	100	29.3	28.3	27.4	27.3	26.5	25.7	.....	24.1	25.5
30% Blend	100	.....	.....	.....	28.3	26.4	24.5	.....	24.4	.....
40% Blend	90	.....	.....	.....	28.7	28.2	27.7	.....	26.2	27.4
40% Blend	90	.....	.....	.....	28.9	28.0	27.1	.....	25.9	.....
40% Blend	100	34.0	33.5	32.9	33.1	32.4	31.7	.....	30.5	32.6
40% Blend	100	34.0	33.6	33.2	33.3	32.8	32.5	.....	30.6	.....

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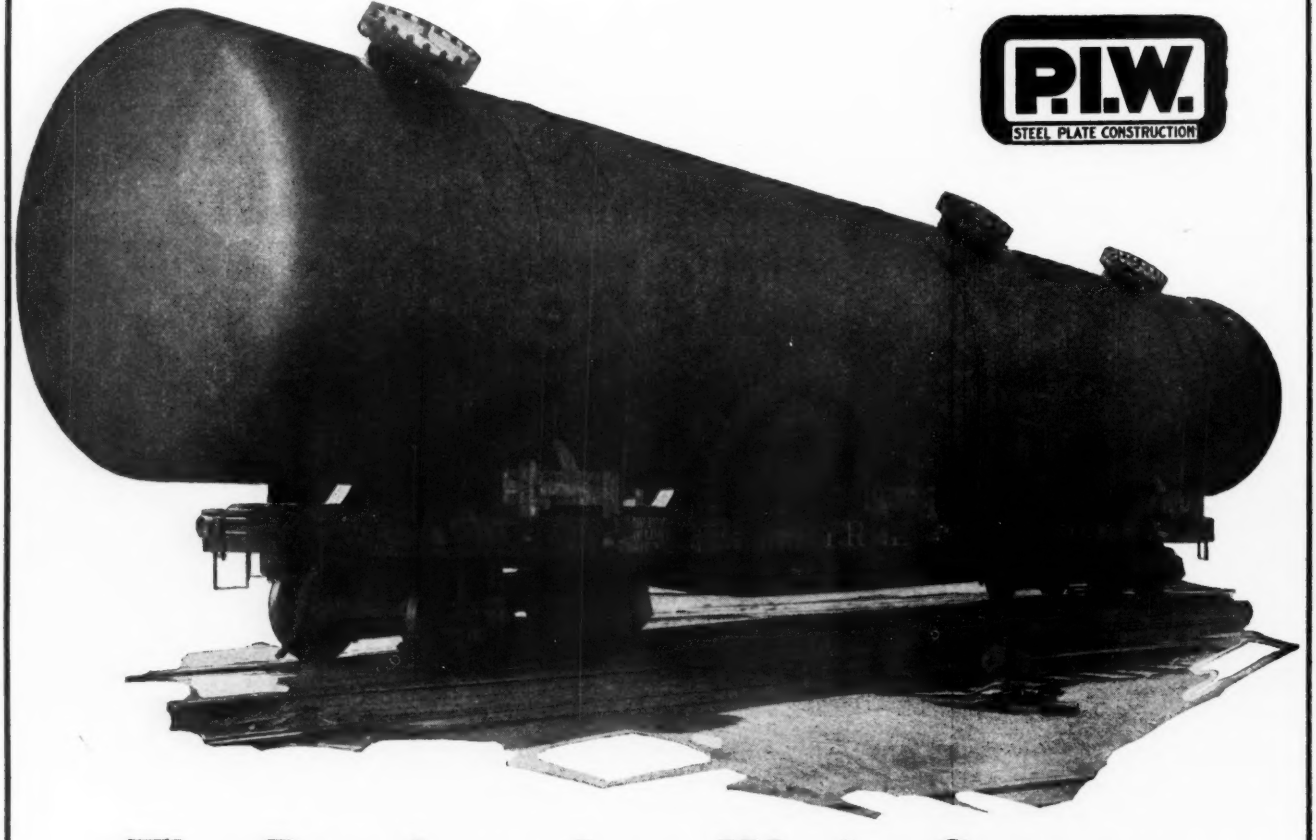

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Table 2

Vapor pressure of Air-free "Butane-free" gasoline (a) with Large Beistle Bomb

(Lbs. per Sq. In. Abs. @ 100° F.)

Outage c. c.	Observed Pressure Lbs./Sq. In. Abs.	Vapor Pressure
200	10.6	10.6
400	10.6	10.6
600	10.6	10.6
800	10.6	10.6

(a)—The standard Beistle-Prather bomb gave a vapor pressure of 10.2 lbs. per sq. in. abs. @ 100° F.

A second test on the same material, taking a larger number of pressure readings, was made some time after the first test and gave somewhat different results. These are shown in Table 3. It is probable that some air was absorbed by this sample during handling.

Table 3

Vapor pressures of partially de-aerated "Butane-free" gasoline determined with the large Beistle-Prather Bomb

Outages and Pressures			Vapor Pressure Lbs. per Sq. In. Abs. at 100° F. Calculated by Using Following as First Reading and Corresponding Designated Pressure as Second Reading								
Corres. Obs. Press. c. c.	Corres. Desig. Press.		P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8	P_9
130	13.7	P_1	.....	.....	.....	.....	.....	.....	.....	.....	.....
214	13.0	P_2	11.9	.....	.....	.....	.....	.....	.....	.....	.....
314	12.9	P_3	12.3	12.7	.....	.....	.....	.....	.....	.....	.....
414	12.2	P_4	11.5	11.4	10.0	.....	.....	.....	.....	.....	.....
514	12.2	P_5	11.7	11.6	11.1	12.2	.....	.....	.....	.....	.....
614	12.1	P_6	11.7	11.6	11.3	11.9	11.6	.....	.....	.....	.....
714	11.9	P_7	11.5	11.4	11.1	11.5	11.2	10.7	.....	.....	.....
814	11.6	P_8	11.2	11.1	10.8	11.0	10.6	10.1	9.4	.....	.....
914	11.3	P_9	10.9	10.8	10.5	10.6	10.2	9.7	9.2	8.9	.....
1014	11.1	P_{10}	10.7	10.6	10.3	10.4	10.0	9.6	9.2	9.1	8.3
1114	10.9	P_{11}	10.5	10.4	10.1	10.1	9.8	9.4	9.1	9.0	9.1
1214	10.6	P_{12}	10.2	10.1	9.8	9.8	9.4	9.1	8.7	8.6	8.4
1280	10.5	P_{13}	10.1	10.0	9.7	9.7	9.4	9.0	8.7	8.6	8.5

The standard Beistle-Prather bomb gave a vapor pressure of 10.1 pounds per square inch absolute at 100 degrees F. In the above apparatus the vapor-liquid volume ratios when P_8 and P_{10} are obtained are practically the same as in the standard Beistle-Prather apparatus. It will be noted that the value of 10.0 in the table checked well with the standard Beistle-Prather value.

2. Effect of Dissolved Gases

The foregoing tests indicated that the fixed gases present in the liquid were chiefly responsible for the change in vapor pressure due to increase in vapor-liquid volume ratio. To determine the maximum variation due to this factor another series of tests was made using the large bomb previously described.

Two samples of a "butane-free" natural gasoline were used. The first sample was saturated with a high methane content gas at approximately atmospheric pressure by recirculating the gas in a closed system through the gasoline. Additional gas was continually supplied to replace that which went into solution. The second sample was well saturated with air. This was accomplished by placing the sample in a stoppered bottle which had communication to the atmosphere by means of a small capillary tube placed in the stopper. To facilitate saturation with air the sample was shaken at frequent intervals.

The results obtained with these samples are given in Tables 4 and 5.

Table 4

Vapor pressure of "Butane-free" natural gasoline saturated with natural gas of high methane content

Outages and Pressures			Vapor Pressure Lbs. per Sq. In. Abs. @ 100° F. Calculated by Using the Following as First Reading and Corresponding Designated Pressure as Second Reading								
Corres. Obs. Press. c. c.	Corres. Desig. Press.		P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8	P_9
130	16.8	P_1	.....	.....	.....	.....	.....	.....	.....	.....	.....
214	14.6	P_2	11.3	.....	.....	.....	.....	.....	.....	.....	.....
314	14.2	P_3	12.4	13.3	.....	.....	.....	.....	.....	.....	.....
414	13.9	P_4	12.6	13.2	13.0	.....	.....	.....	.....	.....	.....
514	13.2	P_5	12.0	12.2	11.7	10.3	.....	.....	.....	.....	.....
614	12.7	P_6	11.6	11.4	11.1	10.2	10.1	.....	.....	.....	.....
714	12.3	P_7	11.3	11.3	10.8	10.1	10.0	9.8	.....	.....	.....
814	12.0	P_8	11.1	11.1	10.6	10.0	9.9	9.9	9.9	.....	.....
914	11.6	P_9	10.8	10.7	10.3	9.7	9.6	9.4	9.2	8.4	.....
1014	11.4	P_{10}	10.6	10.5	10.1	9.7	9.5	9.4	9.3	9.0	9.5
1114	11.1	P_{11}	10.4	10.3	9.9	9.4	9.3	9.2	8.5	8.7	8.8
1214	10.9	P_{12}	10.2	10.1	9.8	9.4	9.2	9.1	8.9	8.7	8.8
1314	10.7	P_{13}	10.0	9.9	9.6	9.2	9.0	8.9	8.7	8.4	8.4

It will be noted in Table 4 that the first observed pressure (16.8) which corresponds roughly to a vapor pressure by the Anderson method is about 77 per cent higher than the vapor pressure of 9.5 calculated from the P_5 and P_{10} readings. The entire spread of the values in the table is 5.2 pounds. The highest value is 40 per cent higher than P_5-P_{10}

Table 5

Vapor pressure of "Butane-free" natural gasoline partially saturated with air

Outages and Pressures			Vapor Pressure Lbs. per Sq. In. Abs. @ 100° F. Calculated by Using the Following as First Reading and Corresponding Designated Pressure as Second Reading								
Corres. Obs. Press. c. c.	Corres. Desig. Press.		P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8	P_9
130	16.1	P_1	.....	.....	.....	.....	.....	.....	.....	.....	.....
214	14.6	P_2	12.3	.....	.....	.....	.....	.....	.....	.....	.....
314	13.7	P_3	12.0	11.7	.....	.....	.....	.....	.....	.....	.....
414	13.3	P_4	12.0	11.9	12.1	.....	.....	.....	.....	.....	.....
514	12.5	P_5	11.3	11.0	10.7	9.2	.....	.....	.....	.....	.....
614	12.3	P_6	11.3	11.1	10.8	10.2	11.2	.....	.....	.....	.....
714	12.1	P_7	11.2	11.0	10.9	10.4	11.1	11.1	.....	.....	.....
814	11.7	P_8	10.9	10.7	10.4	10.0	10.3	9.9	8.8	.....	.....
914	11.5	P_9	10.8	10.6	10.4	10.0	10.2	9.9	9.4	10.0	.....
1014	11.2	P_{10}	10.5	10.3	10.1	9.8	9.9	9.5	9.1	9.2	8.4
1114	10.9	P_{11}	10.2	9.9	9.8	9.5	9.5	9.2	8.8	8.8	8.2
1214	10.8	P_{12}	10.2	10.0	9.8	9.5	9.5	9.3	8.9	10.0	8.6

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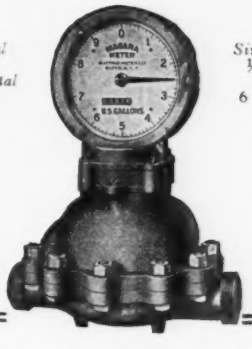

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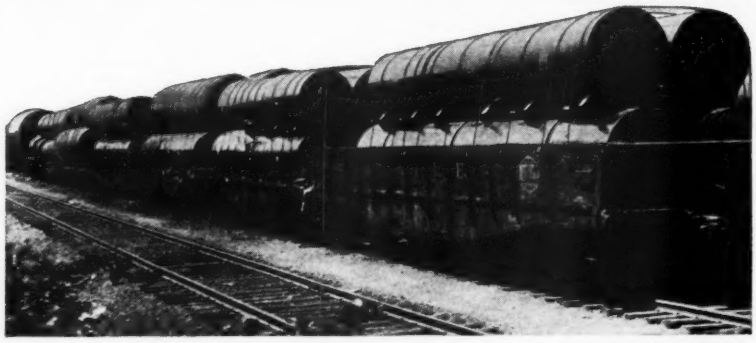

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vapor pressure, while the lowest is 15 per cent lower. These are extreme values under what are probably the worst set of conditions. The average value of the pressures in columns P_3-P_9 inclusive, is 9.5, while the maximum deviation for these values, excepting the first three under P_3, is ± 10 per cent.

The results in Table 5 show somewhat less maximum deviation from the P_5-P_{10} value of 9.9 than those of Table 4. In the main, however, especially when the accuracy of the spring gauge is considered, they are not appreciably different, and leads to the conclusion that air and methane affect the vapor pressure in a somewhat similar manner.

Tables 4 and 5 also indicate that the vapor-liquid volume ratio should not be lower than about 0.3 in this type of apparatus if it is desired to minimize the major effect of fixed gases and thereby obtain fairly satisfactory checks.

3. Effect of Water

The third variable in the Beistle-Prather method is the amount of water present. The gasoline may have water in solution as the result of methods of manufacture, storage over water, or sampling by water displacement. Water may also be present in the bomb. Where the sample is taken by water displacement this is unavoidable; and where the bomb is cooled in an ice-water bath, even when the sample is transferred by pouring, there is usually enough water present to contribute its full vapor pressure effect to that of the gasoline.

In order to eliminate this variable the practice of wetting the bomb with water before each test and then subtracting the vapor pressure of water from the determined vapor pressure was adopted as being simpler and probably more accurate than the alternate procedure of drying the gasoline and bomb before each test.

A Laboratory Apparatus for Determination of the Vapor Pressure of Gasoline

THIS apparatus was designed with a view of eliminating the spring gauge error of the standard bomb and of minimizing the evaporation of the sample. The apparatus (a) consists of a three-bulbed burette enclosed in a water bath, a mercury manometer, a leveling bulb and a sampling device. Figure 1 is a sketch of the three-bulbed burette. The dimensions given are those which were found to make an easily handled apparatus. The apparatus may be of any dimensions providing the volumes of the top two bulbs are made nearly equal and that of the bottom greater than the sum of the top two. Figure 2 is a sketch of the complete apparatus. The sampling device "A" is a metal can from which the bottom has been removed. An alternate sampling device for use with liquids that are too volatile to be handled at 32 degrees Fahr. is shown at "C." The water bath "D" may be a glass bottle which has had the bottom cut off or a metal box with windows. Compressed air is used to agitate the water bath during the test. Flexible connections at the top and bottom of the vapor pressure burette make it possible to shake the apparatus vigorously without danger of breakage.

(a)—Apparatus may be obtained from the Refinery Supply Co., Tulsa, Okla.

Method of Operation

The leveling bulb is raised until mercury begins to overflow at "d." The can "A" is then filled with an ice-water mixture. A bottle containing the sample to be tested is inverted over the tube in the position shown. The bath "D" is also filled with water which is maintained 10 or 15 degrees below room temperature in order to facilitate transfer and avoid vapor pockets.

A portion of sample sufficient to approximately fill the top bulb is now drawn into the burette. The stopcock is turned so as to communicate with the air and the apparatus flushed by lowering and raising the leveling bulb several times. This sample is then discarded and a fresh sample slowly drawn in. It is important that no gassing occurs in the tube leading from the sampler to the burette during the sampling. When the mercury level is exactly at the mark at the lower end of the second bulb, the stopcock is turned to shut off the supply of liquid. The leveling bulb is lowered till the gasoline level is approximately at the mark between the top bulbs. The temperature of the water in the bath is now brought to the temperature at which the vapor pressure is to be measured. This is usually 100 degrees Fahr.

The leveling bulb is now adjusted so that the top level of the sample remains exactly at the mark between the upper bulbs after vigorous shaking. The manometer is now read. In a similar manner a second manometer reading is obtained when the top level of the sample is at the bottom of the second bulb. These are designated as the first and second pressure readings respectively.

The stopcock is now turned to communicate with the air, and the manometer readings obtained when the level of the sample is at the same marks as before. These two readings give the heights of the mercury column when there is atmospheric pressure in the burette, and serve as reference points for the calculation of the absolute pressure in the burette when each of the pressure readings were taken. The first of these readings is subtracted from the first pressure reading and this result added algebraically to the barometric pressure. The result is the absolute pressure in the burette when the first pressure reading was taken. Similarly, the second manometer reading when the stopcock was opened to the air is subtracted from the second pressure reading and the result added algebraically to the barometric pressure to give the absolute pressure in the burette when the second pressure was taken.

If the volume of the first bulb is equal to the volume of the second bulb, the vapor pressure of the sample is calculated by doubling the second absolute pressure and subtracting the first absolute pressure from it. If the above volumes are not equal, the vapor pressure of the sample can be calculated by means of the equation—

$$\text{Vapor pressure} = \frac{V_2P_2 - V_1P_1}{V_2 - V_1}$$

where V_1 is the volume of the top bulb and V_2 is the volume of the two bulbs. P_1 and P_2 are the first and second absolute pressures respectively.

In conducting a test in the manner outlined above there is usually enough water present in the apparatus to saturate the liquid and vapor space with water vapor. If there is any doubt, water should be added. This procedure avoids the necessity of drying the sample and keeping the

Table 6

Comparative Vapor Pressures of Several Hydrocarbon Mixtures

(Lbs. Per Sq. In. Abs. @ 100° F.)

Chief Constituent	Lab. Method	Beistle-Prather	Reid	Vapor Press. from I. B. P.
Heptanes	2.6	4.0	2.1	2.2
Heptanes	2.6	3.8	2.2	.....
Average	2.6	3.9	2.2	2.2
Heptanes	3.3	4.2	2.9	3.4
Heptanes	3.3	4.7	2.8	.....
Average	3.3	4.5	2.9	3.4
Hexanes	5.5	5.9	4.4	5.4
Hexanes	6.0	6.1	4.7	.....
Average	5.8	6.0	4.6	5.4
Hexanes	6.6	7.1	6.7	6.1
Hexanes	6.6	7.0	6.7	.....
Average	6.6	7.1	6.7	6.1
Hexanes	9.2	9.8	8.9	9.3
Hexanes	9.1	9.7	8.8	.....
Average	9.2	9.8	8.9	9.3
Pentanes	15.9	16.9	13.3	15.8
Pentanes	16.6	16.9	14.1	.....
Average	16.3	16.9	13.7	15.8

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apparatus dry. In ordinary routine work it will be satisfactory in most cases to omit corrections for the pressure effect of the water, since the vapor pressure of the water is a constant factor throughout. However, if the vapor pressure of the gasoline alone is needed, corrections should be made for the vapor pressure of water at the temperature of the test.

Table 6 is a comparison of results obtained with the laboratory method and those obtained by several other methods. The samples used were paraffin hydrocarbon mixtures of narrow boiling range. The initial boiling points of these samples were obtained in the conventional Engler distillation test except that the thermometer bulb was placed in the liquid. It will be noted that satisfactory checks are obtained with the laboratory method.

Table 7 is a comparison between the results obtained with the laboratory apparatus and those obtained with the standard Beistle-Prather bomb on a series of gasolines covering a wide range of volatility. In general, the results obtained with this apparatus on ordinary gasolines are higher than those obtained with the Beistle-Prather bomb, the difference on the average being about 0.5 pound.

Table 7

Comparative Vapor Pressures of Several Samples of Gasoline
(Lbs. Per Sq. In. Abs. @ 100° F.)

Sample No.	Description	City Where Sampled	Lab. Method	Std. Beistle-Prather Bomb Method
S. 112	Grade "C" Nat. Gaso.	Burbank	38.2	35.9
M. F. 329	Aviation Gasoline	Tulsa	14.2	13.9
O. N. 470	Aviation Gasoline	Burbank	10.7	11.2
M. F. 319	Aviation Gasoline	Dallas	8.0	8.0
M. F. 299	Motor Fuel	Tulsa	16.7	16.5
M. F. 287	Premium Motor Fuel	Pittsburgh	14.8	14.2
M. F. 237	Motor Fuel	Pittsburgh	10.7	10.6
M. F. 178	Motor Fuel	St. Louis	10.8	9.3
M. F. 302	Motor Fuel	Bartlesville	10.3	9.5
M. F. 251	Motor Fuel	St. Louis	9.9	9.5
M. F. 328	Motor Fuel	Bartlesville	9.7	9.8
M. F. 209	Motor Fuel	New York	9.9	8.6
M. F. 236	Motor Fuel	Pittsburgh	9.2	8.9
M. F. 253	Motor Fuel	Salina, Ks.	9.1	8.6
M. F. 252	Motor Fuel	Salina, Ks.	9.2	8.4
M. F. 172	Motor Fuel	Dallas	8.1	7.8
M. F. 248	Motor Fuel	New York	8.0	7.6
M. F. 258	Motor Fuel	Dallas	7.9	7.7
M. F. 170	Premium Motor Fuel	St. Louis	7.7	7.8
	Average		11.7	11.2

Summary

Preliminary investigation of factors affecting vapor pressure tests by methods involving the principles used in the Beistle-Prather method show that different vapor pressures can be obtained for the same liquid if different vapor-liquid volume ratios are used. The variation in these vapor pressures is principally due to the additional air or gas that comes out of solution between the two pressure readings. Tests indicate that the change in vapor pressure due to evaporation of small amounts of the liquid is slight. If the vapor-liquid volume ratio chosen for the first pressure reading is not less than 0.3 the major effect on the vapor pressure of air or other fixed gases is minimized and the vapor pressures obtained compare very well with those calculated from a composition analysis of the sample.

A laboratory apparatus minimizing some of the errors and disadvantages of the Beistle-Prather bomb method has been described. The spring gauge error is eliminated in this apparatus by means of a mercury manometer. Another advantage of the apparatus described is that since no liquid is vented during a test, the readings may be checked as many times as desired. Results obtained show that satisfactory check tests can be obtained on different samples of the same material by different operators, and that these results average about 0.5 pound higher than those obtained with the Beistle-Prather bomb on ordinary gasolines.

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Laboratory Staff Should Keep Finger On Pulse of the Refinery

By D. F. Gerstenberger

ONE of the necessities of successful refinery operation is a proper control of the distillation process by an efficient laboratory. Maximum yields, and a satisfactory product can not be obtained if the importance of this department is under-estimated.

We will deal in this article with what has been found to be a satisfactory method of control for various refinery products, and we will try and point out some of the advantages of a consistent laboratory check on the plant operations.

To begin with, the laboratory should be constructed in a manner that will enable those engaged in this department to work efficiently. Light oils should, where possible, be handled in a separate testing room, and by separate testers, away from the heavier oils.

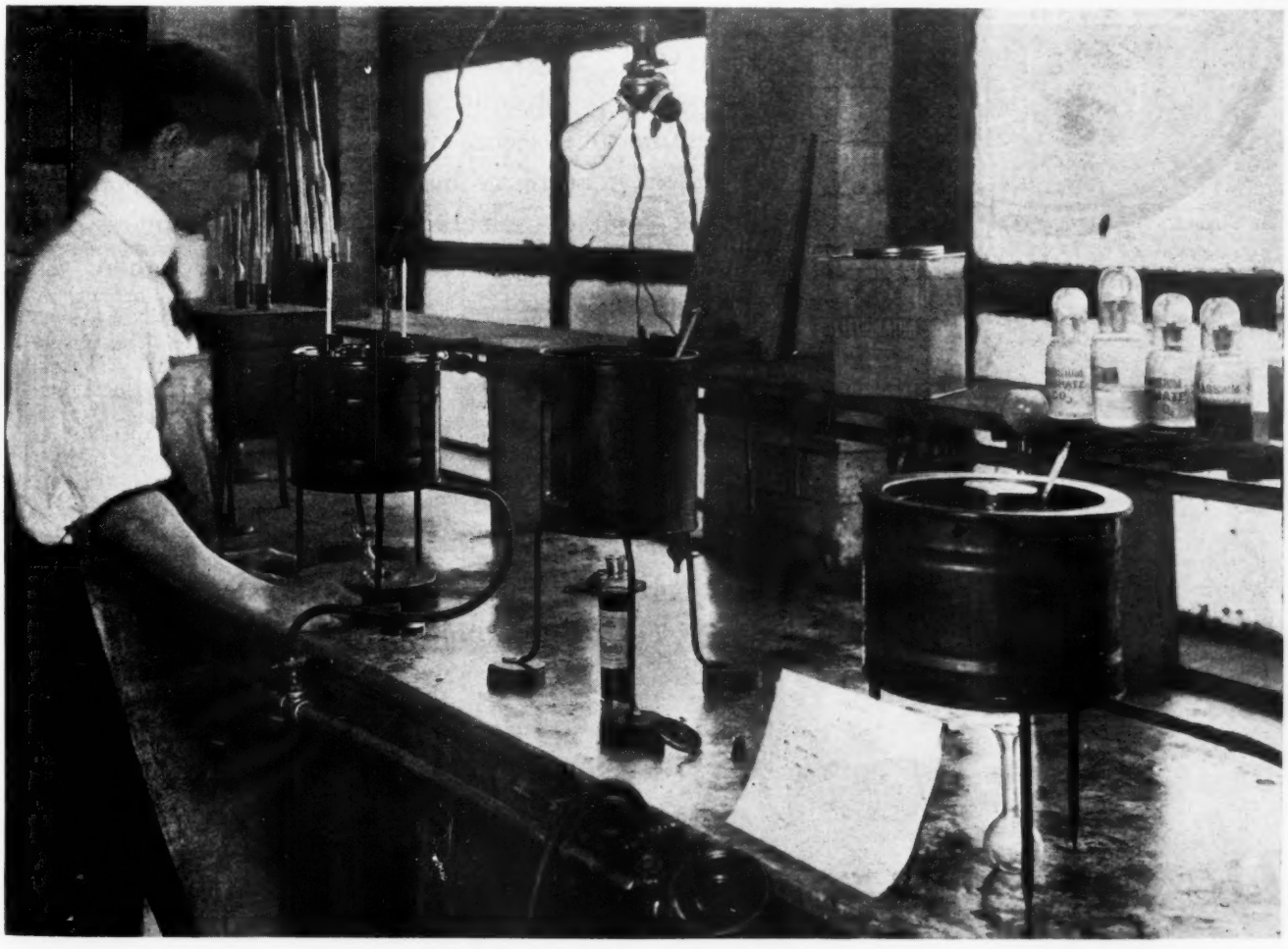
A means should be provided for receiving the samples brought in for testing in a like manner, that is, the heavy oil samples should be received at a point where it is not possible for them to contaminate the containers of the light oil samples, and they should be placed where they will be readily accessible to the testers.

These points should not be underestimated in importance, for the speed and efficiency of testing means a minimum laboratory force and this department is one that must of necessity be run on an economical basis.

Sample taking should be under the jurisdiction of the laboratory, so that department may be entirely accountable for the accuracy of the results of any testing work given out. Rules for sampling should be rigid. Containers should be absolutely clean, stoppers should be likewise thoroughly clean, strings or chains used for drawing samples should be used only for the same grade of oil at all times, and definite rules should be established for the taking of average, top, bottom, still, tank car, and other samples, so that results obtained may always be considered uniform.

It will be found for certain operations that it is desirable to have definite check samples of both the stream and rundown tanks at definite periods. The testers in the laboratory should be familiar with the schedule for the taking of all such samples and should be just as much interested as the still operators in making sure that these samples arrive on time and are tested immediately.

They should be just as much interested in the yields obtained from the stills as the operator for they play a part in the results obtained, the same as the operators do, as will be pointed out. Such samples should



Making viscosity tests on oil in a refinery laboratory

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be tested and reported back to the still operator as quickly as possible, for the laboratory is his key to efficient operation.

In the event that any particular sample can not be tested prior to the time that the next sample arrives, it should be by-passed for the time being, so that the regular schedule is in no way upset, and if desired, it can be tested later when the time presents itself that it can be handled without disturbing the regular routine.

Let us consider for the moment, the advantage of a systematic check on refinery distillation. Many refineries still operate today by the old method of cutting their streams by gravity. This is particularly true where a rerun is needed on the product after it is separated in the particular distillation from which it is originally cut.

The only check that the department head, or superintendent has on such an operation is the average sample of such a product taken from the tank into which it is run. The stream may run light at one time, and heavy the next, and still produce an average sample which would come close to the specifications expected. It is useless for me to point out that such an operation does not give a maximum yield of the particular product desired nor does it give the best quality product.

If it is a product which must be treated, and it contains at one time five per cent more heavy ends than at another, the chemicals used will not have the same treating effect in both cases. The distillation rate varying constantly, will not produce the best results from the particular equipment in use.

Occasional stream and tank samples, properly tested at regular intervals during the operation tell a story which states definitely that the distillation is or is not being carried on as it should, and if the samples are taken by a sample boy working out of the laboratory, there is not any opportunity for the operators to try to take such samples at a time which might appear favorable to the operation of the stills.

Control on the final distillation process is very essential. If proper tests are made on the streams and tanks of such operations, the products can run very close to specifications at all times and a maximum yield is assured.

For example, the writer has seen such an operation controlled to the extent that gasoline shipped almost direct from the run-down tanks would not vary one point at the most in end point and where any blending was possible that it met these tests exactly.

If a refiner must meet an end point of 437 on his gasoline, but for safety's sake operates his stills so as to give an end point of 435, simply because he is not able to maintain

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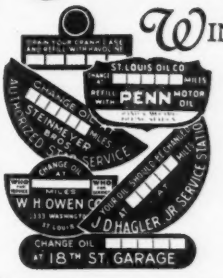

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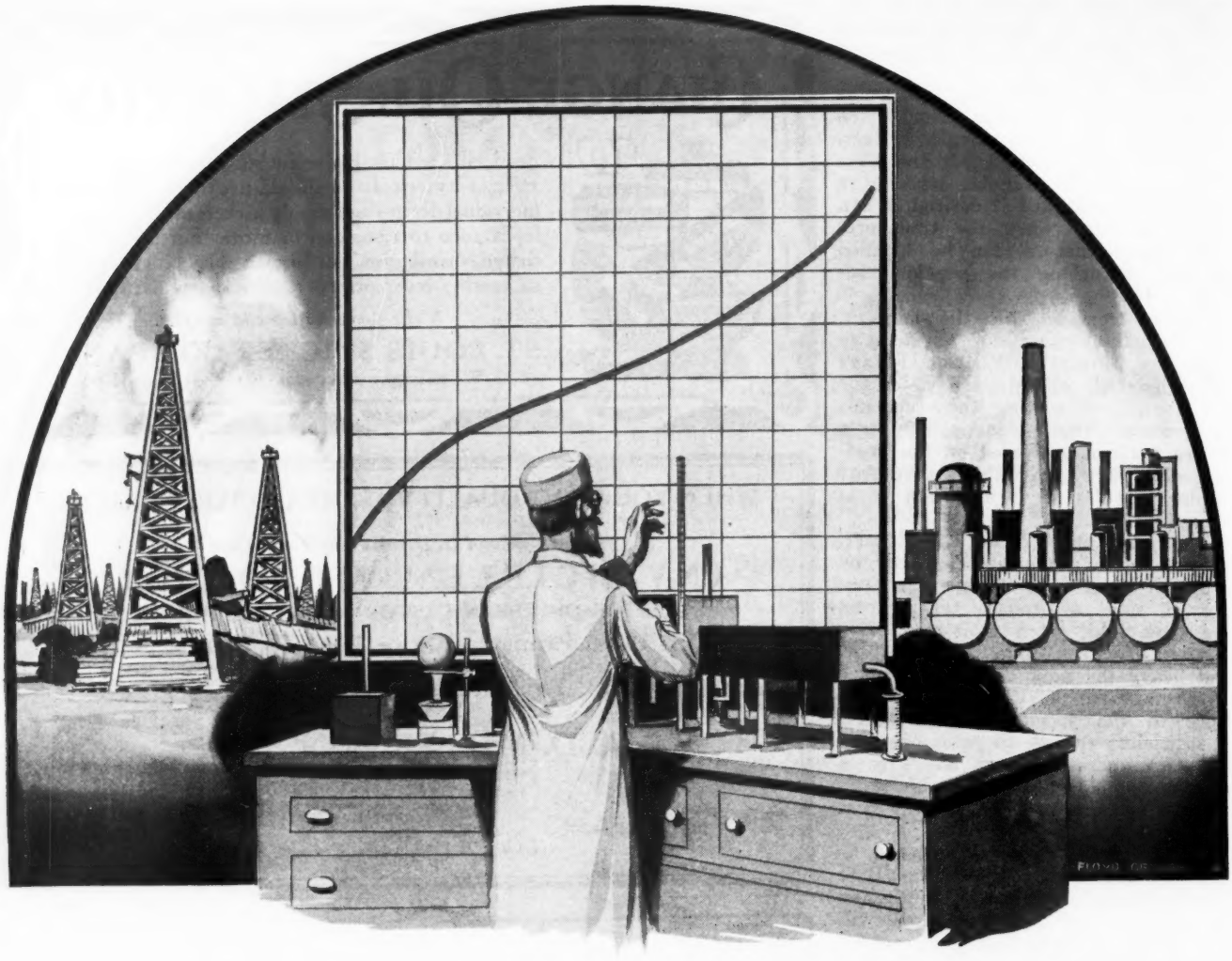

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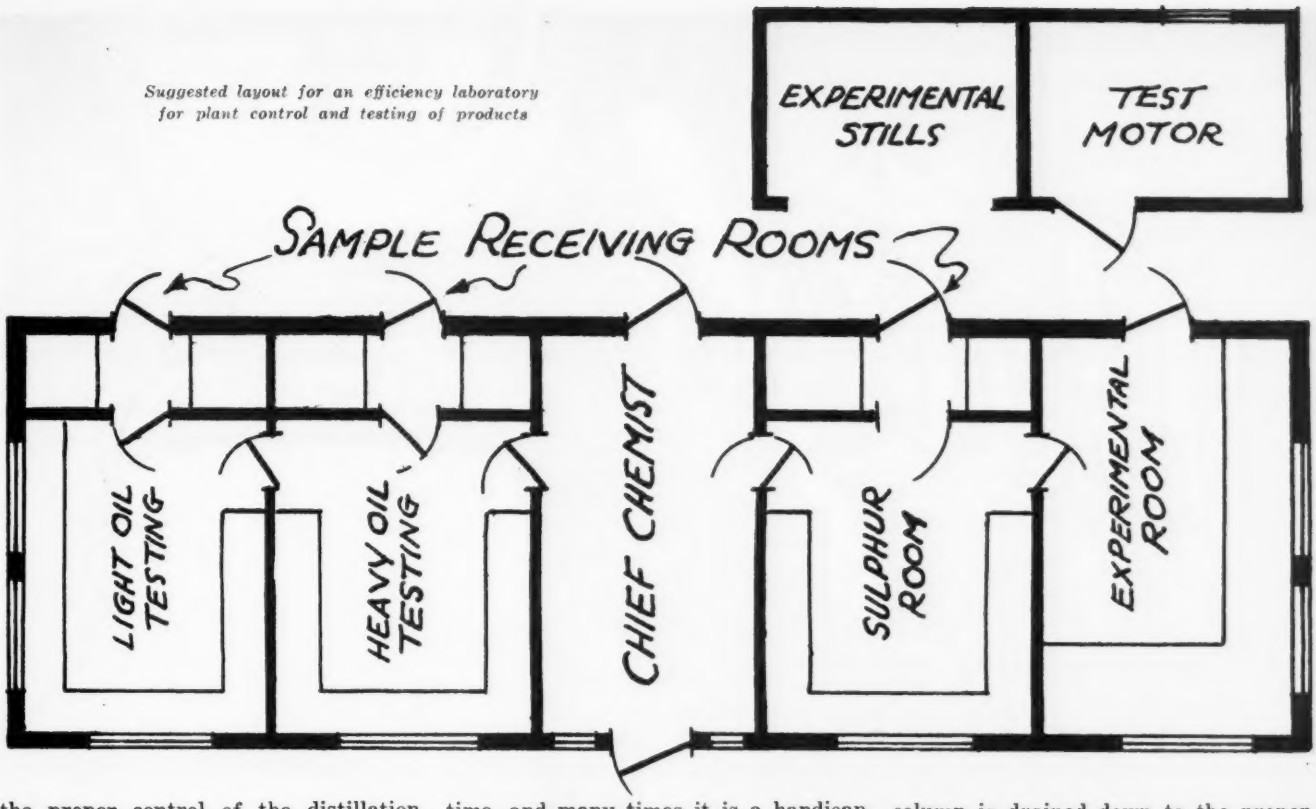

Suggested layout for an efficiency laboratory for plant control and testing of products

the proper control of the distillation by the laboratory he undoubtedly is sacrificing one or two per cent of gasoline which in this day of small profits might spell the difference between profit and loss.

There are times when the amount of gas oil produced from a cracking operation makes it either a profitable, or a losing proposition. Proper laboratory control of the fuel oil being produced governs this channel of profit. In a great many instances it also spells the difference between a marketable, or an off-set fuel.

The laboratory work must naturally be dependable. Poor testing is worse than none. Consequently all rules of proper testing must be followed exactly to the letter. A slight difference in the placing of the thermometer in the neck of the distillation flask will make a considerable difference in the results obtained.

The rate of distillation will also seriously affect the results. This holds true in heavy oil testing also. The writer has seen a car of asphalt held up until $800 demurrage had to be paid, simply because the man testing the product used a can for taking the sample which had previously contained lard. This raised the penetration and a controversy ensued before the car would be accepted.

One of the tests which practically all gasoline must meet today is the corrosion test. Most buyers require the copper strip method. As a result, it is desirable to have the gasoline meet this test while being run from the stills, where possible, and naturally it must meet it, before it can be shipped from the refinery. It is well known, that this test properly run, requires some time, and many times it is a handicap to the still operation, or to the shipments. It has been found that a copper strip will invariably be bright in the regular test when it remains bright when exposed for 30 minutes in the same gasoline at 212 degrees F. Consequently this test, being somewhat more severe, can be substituted for the longer method with satisfactory results for still control.

The laboratory equipment should be standardized equipment. The various kinds of distillation and flash equipment which have been used do not all give the same results. Today, most oil is sold on specifications laid down by the Bureau of Mines, which makes a good standard from which to work, unless otherwise required for special products.

One of the most difficult tests from which to obtain check results is the color test on light oils, for the reason that it is dependent on the vision and judgment of the tester. Night colors are especially difficult to match because, so far, a light which will give the same reflected ray as daylight, has not been entirely perfected.

It is good policy where possible, to have two testers run colors on the same sample before shipment, each one noting his results, and then comparing the two tests to assure that the oil meets this test before being shipped. Care must be exercised as to the cleanliness of the color testing apparatus. If the glass in the bottom of the oil column becomes dirty, or encrusted, the results will be changed considerably.

Perfectly clean containers should be used for pouring the oil into the color tube, and for receiving it as the column is drained down to the proper color reading. The writer has seen carelessness in these respects vary the color shade four to five points.

The laboratory organization is one that must of necessity vary according to the requirements of the plant it serves. On the other hand, there are certain forms of organization, which in a great many instances have worked out to be a satisfactory unit. A chief chemist in charge of the work in a reasonably sized plant is usually desirable.

In addition to handling the laboratory as a whole, he can do such additional work as the testing of water for various uses, sulfur testing, standardizing all instruments used by checking with a set standard, and the working of any special laboratory problems for control either in or outside of the refinery proper.

If the organization is large enough it were advisable to have a head tester, who sees to it that all samples are tested on time and that the tests are carried on in the proper manner.

He works out to advantage in checking occasionally the work of each tester, thereby assuring that the proper care is given to the testing work being done. He is indirectly accountable to the head chemist, and keeps him in close touch with the routine work going on in the laboratory.

An experimental laboratory, in conjunction with the refinery laboratory is an essential. Experiments should be under way at all times for the improvement of distillation and treating methods in use and the work carried on properly eliminates a great many times wasted efforts in overcoming some problem that might pre-

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sent itself in the refinery. It is also the means at times of helping to economize on refinery operations, by the use of less chemical in treating or less steam or better fractionation in distillation work.

Motor fuels should also be tested continually in a test engine, to insure that they are free from gumming compounds, and that they are standing up to competitive products for mileage as well as antiknock qualities. These are some of the most common ways in which the experimental laboratory can be of service. In the small plant, where such tests are not carried on as a part of the every day work, the head tester can sometimes do such testing in conjunction with his regular work.

Where the burning method is used to determine the sulfur content of gasoline and kerosene, care must be exercised to see that the air in the sulfur room is free of sulfurous gases, or else the sulfur in the air aspirated through the solution will raise the sulfur reading considerably. Where possible, it were best to have a separate room for this work, which is well ventilated. Otherwise, the work should be carried on when other work can be laid aside. Solutions used for titrating should be tested frequently to insure that they are standard.

The accompanying sketch is one which is recommended as an efficient building for a laboratory. Partitions of tile or brick, with the upper half glass are ideal, so that the head tester and chemist can at all times see what is going on in every testing room. Wire-inserted clear glass should be used as a precaution against fire damage. In this connection it might be well to mention that at no time should large quantities of samples be accumulated in the testing rooms. Serious laboratory fires have resulted from negligence of this very thing.

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CLEVELAND, May 11

SELL your merchandise and your service to your own employes first, is a merchandising injunction a great many oil marketers have ignored in the past.

Recently more marketers have been giving more thought to merchandising and personnel problems and have adopted policies of keeping their station salesmen posted about company activities and the performance of its products, so they may deal more intelligently with the public. Such activity also has been found to stimulate the employes' morale and keep up the spirit of the organization.

Columbia Refining Co., control of which was bought recently by the Pennzoil Co., Oil City, Pa., is issuing to its station salesmen and dealers a bulletin giving merchandising helps on Columbia's products.

The bulletins are issued once or twice a week, depending on the amount of news the company may have. They are mimeographed on letter size paper and signed by Burt Zimmerman, general manager of the company.

One recent bulletin tells of the opening of a New Columbia service station in a small city 40 or 50 miles from Cleveland. Progress of work on a Cleveland station is reported.

There's a paragraph announcing a new Ohio law which requires gasoline tank trucks to come to a full stop 10 to 50 feet from the nearest rail before crossing steam or electric railroad tracks.

A world's automobile speed record was made using a treated gasoline like that sold by the company. There are two historical notes, one on the previous speed record and also a note that the air speed record, made last September in Venice, was by a plane in which the treated gasoline was used.

Then comes an announcement that all the company's stations are to be "dolled up" and that a check will be kept to see how they compare from month to month. This is followed by two sentences boosting the company's motor oils.

The concluding sentence urges the men to "Take advantage of weather conditions to improve your business and do not forget that business does not just come to you, but that your success is due to your efforts and will rise or fall in line with what you do."

That is a lot of information for one letter and it gave the company's employes and dealers a good idea of what the company is doing and hopes to do.

In another bulletin, the coming visit of Clarence Chamberlin, the aviator, to Cleveland under the company's auspices was explained. There was a pep talk urging the station men to take advantage of this visit to promote their business. Tank wagon price advances were listed and this piece of market advice was given the dealers:

"There is an upward tendency in both retail and wholesale prices and our advice to you is to keep filled up so that you may benefit by any station rise."

A bulletin was rushed to each station salesman and dealer announcing that Capt. George H. Wilkins, whose exploit of flying over the North Pole was still news in the daily press, had used the company's brand of motor oil. Attention was again called to Chamberlin who had used the oil on his flight to Germany.

"Bring these facts before your clientele, as they are of vast importance and will help your sales," was the concluding suggestion.

Columbia is also using trade pullers at its own and dealer stations. Chinaware and electric cookers are among recent offerings. The cookers sell for $4.75 and 10 certificates. The certificates, or coupons, are given with gasoline purchases. There are three combinations of dishes which sell for 99 cents and five coupons each. One combination has six pieces: cup, saucer, dinner plate, bread and butter plate, fruit dish and oatmeal dish. A covered sugar and creamer are the second combination and vegetable dish and meat platter the third.

Sales meetings are held periodically. At a recent meeting a Midgely gas engine indicator was used to demonstrate the difference between anti-knock and ordinary gasolines. Station salesmen on early shifts were assembled at a downtown hotel at 8:30 p. m. and those on late shifts came in after 10. The demonstration and explanations were continued until midnight.

Advertising Conference In June

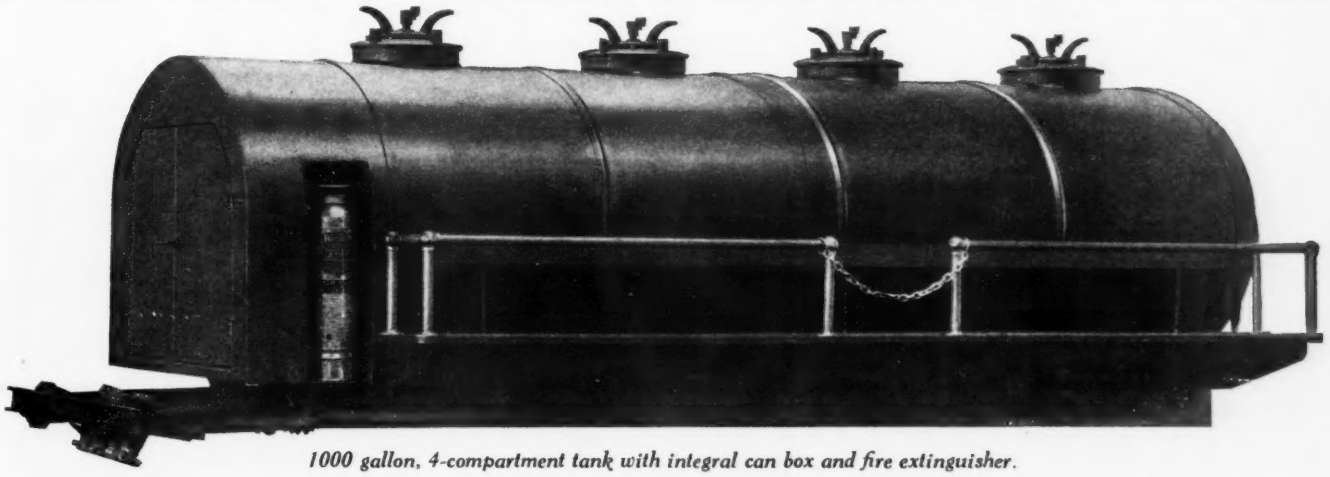
CLEVELAND, May 12.—The annual convention of the National Industrial Advertising Association will be held at Hotel Chase, St. Louis, June 11, 12 and 13.

"Can Industrial Advertising lower the cost of industrial sales, and how" is the theme for the convention.

A lifetime's advertising education in three days is promised those who are planning the program. Merchandising, sales and advertising ideas will be discussed and exchanged by leaders in those lines.

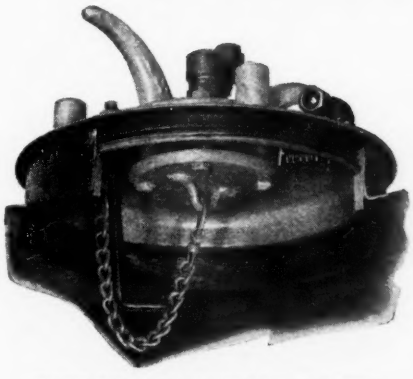
HEIL Quality NEWS

Published by The Heil Co., Milwaukee, Wis.



1000 gallon, 4-compartment tank with integral can box and fire extinguisher.

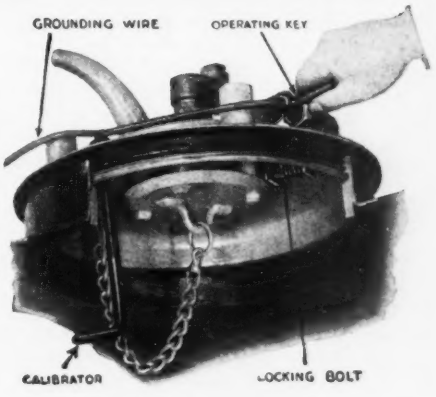
Why HEIL TRUCK TANKS are SUPERIOR



IMPROVED MANHOLE COVER

Every manhole cover is fitted with a capacity calibrating device, 6" filler plug, Heil static eliminator and full-flow air vent.

Unfailing quality and constant improvement in construction and design make Heil Truck Tanks superior to all other tanks on the market. Every tank is quality-made of the finest materials to do double duty advertising and delivering the products of the firms owning them.

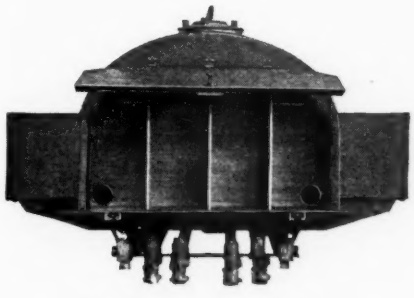


HEIL STATIC ELIMINATOR

Danger of explosion when the station fill pipe is swung over the tank is prevented by the Heil static eliminator. The tank cannot be re-filled until the operating key, attached to an insulated grounded copper wire, releases the locking bolt.

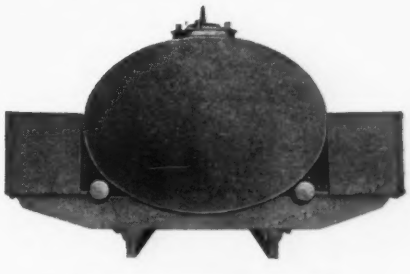
OUTLET and EMERGENCY VALVE

Complete drainage is assured by the dished outlet and the location of the valve seat below the lowest point of the tank shell. The Heil Emergency Valve mechanism is fully protected, for it is inside the tank itself.



REAR VIEW OF TANK

There is no chance of losing hose with ends of carrying tubes inside of can boxes.



FRONT VIEW OF TANK

Every tank is equipped with can racks, steel tubes for carrying the delivery hose and adjustable sill shifter brackets.

1238-50 26th Avenue
MILWAUKEE, WISCONSIN

THE HEIL CO.

Manufcturers of
TANKS, BODIES, HOISTS

Rotary Drilling Taper Joint Gages Simplify Field Practice

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, May 12

ANOTHER important step the petroleum industry has taken toward the adoption of specific standards in its field equipment is marked by the placing of a group order for rotary drilling taper joint gages.

Thirty-seven manufacturers and operators in all United States and foreign oil fields are included in the group order.

The group order has been placed with Pratt & Whitney Co., Hartford, Conn., and delivery of the gages is expected within the present year. Exact delivery date will be announced later.

The gages are being made to American Petroleum Institute standards, No. 7-B, which were formulated by a special committee on the standardization of rotary drilling equipment. This standard of specification is the result of several years' intensive study and experimental work. Large sums of money were expended in making field tests.

When the gages are completed and in the hands of the various manufacturers, it is further pointed out, rotary drilling equipment manufactured with A.P.I. standard taper joints should be interchangeable from the swivel connection to the fish tail bit.

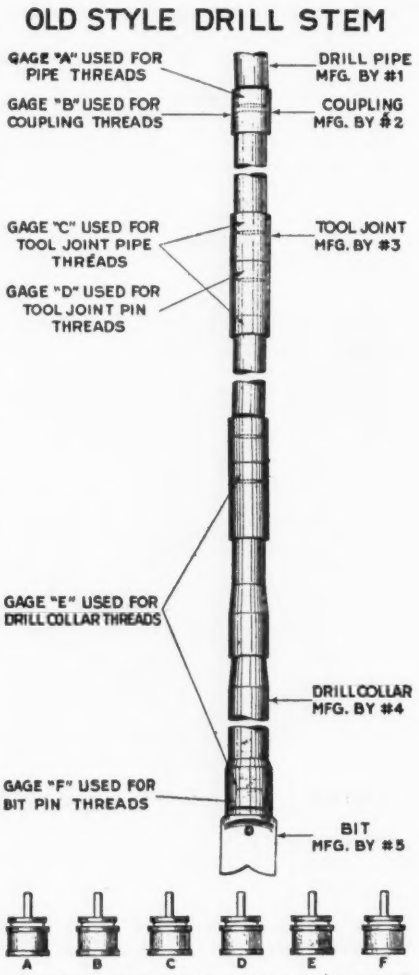
The accompanying illustration shows the inconvenience in the old style drill stem of tools not properly mating; and the correction of this situation in the A.P.I. drill stem by the adoption of new standards. It will be noted that, in the case of the old style drill stem, six different gages are required to gage the threads on five separate items. Two standard A.P.I. gages will gage and assure perfect alignment of all threads on five separate items.

"It is hoped and urgently recommended," says the standardization division letter, "that the various oil operators will analyze their stocks of rotary drilling equipment material now on hand and lay plans for the introduction of these A.P.I. standard joints in their operations; so that, when the gages are delivered and these A.P.I. joints are available on rotary material, they can make the change with minimum inconvenience and expense."

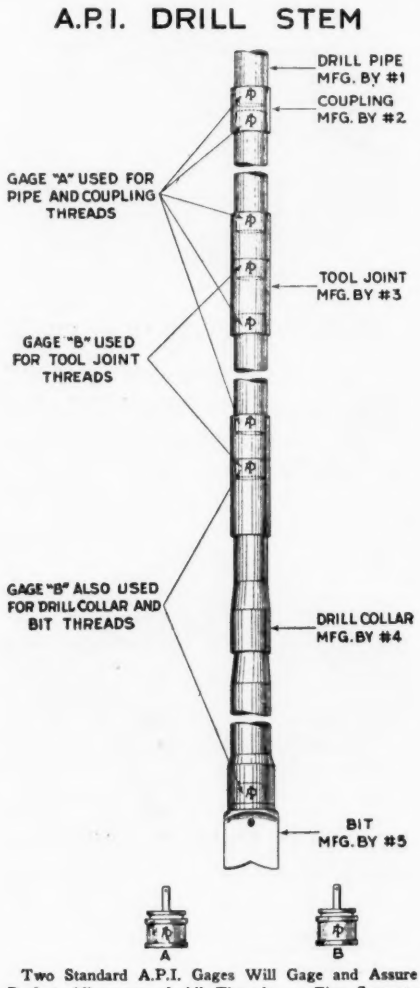
The total cost of the group order for gages is approximately $60,000, which, to make these standards effective, is only a part of the expenditure that eventually will be made, as additional working gages; and, in some cases, possibly machine tool equipment will be necessary.

A.P.I. custodians of master gages are the U. S. Bureau of Standards, Washington; Pittsburgh Testing Laboratory, Pittsburgh, eastern district; U. S. Bureau of Mines, Bartlesville, Mid-Continent district; Smith-Emery Co., Los Angeles, Pacific Coast district. Licensees are:

Baker Casing Shoe Co., Huntington Park, Calif.; Guiberson Corp., Dallas; National Supply Co., of Pennsylvania, Union Tool division, Carnegie, Pa.; Oil Well Supply Co., Pittsburgh; Union Tool Co., Torrance, Calif.; Union Oil Co. of California, Los Angeles; U. S. Tool Co., Inc., Long Beach, Calif.; National Supply Co., Toledo; Reed Roller Bit Co., Houston; Standard Oil Co. of California, San Francisco; H. C. Smith Co., Whittier, Calif.; Vickers, Ltd., New York City; Oil Well Engineering Co., Cheadle Heath, Stockport, England; Hughes Tool Co., Houston; Beaumont Iron Works, Beaumont; Emsco Derrick & Equipment Co., Los Angeles; Acme Fishing Tool Co., Parkersburg, W. Va.; Hinderliter Tool Co., Tulsa; Ohio Oil Co., Findlay; Pratt & Whitney Co.,


OLD STYLE DRILL STEM
GAGE "A" USED FOR PIPE THREADS
GAGE "B" USED FOR COUPLING THREADS
GAGE "C" USED FOR TOOL JOINT PIPE THREADS
GAGE "D" USED FOR TOOL JOINT PIN THREADS
GAGE "E" USED FOR DRILL COLLAR THREADS
GAGE "F" USED FOR BIT PIN THREADS
DRILL PIPE MFG. BY #1
COUPLING MFG. BY #2
TOOL JOINT MFG. BY #3
DRILL COLLAR MFG. BY #4
BIT MFG. BY #5
A
B
C
D
E
F

Six Different Gages Are Required to Gage the Threads on Five Separate Items, Each Item Being Made by Different and Widely Separated Manufacturers With No Assurance That the Parts Will Fit Accurately or be in Perfect Alignment.


A.P.I. DRILL STEM
GAGE "A" USED FOR PIPE AND COUPLING THREADS
GAGE "B" USED FOR TOOL JOINT THREADS
GAGE "B" ALSO USED FOR DRILL COLLAR AND BIT THREADS
DRILL PIPE MFG. BY #1
COUPLING MFG. BY #2
TOOL JOINT MFG. BY #3
DRILL COLLAR MFG. BY #4
BIT MFG. BY #5
A
B

Two Standard A.P.I. Gages Will Gage and Assure Perfect Alignment of All Threads on Five Separate Items, Each Item Being Made by Different and Widely Separated Manufacturers.

Parkersburg

HAS SERVED THE OIL FIELDS OF THE WORLD FOR THIRTY ONE YEARS

Drilling Machines

PARKERSBURG PORTABLE DRILLING MACHINES
PARKERSBURG All Steel DRILLING MACHINE
PARKERSBURG Combination DRILLING MACHINE

PARKERSBURG Portable Drilling Machines are the result of years of specialized effort. The many outstanding and exclusive features embodied in their design and construction originated through a combination of engineering skill and definite knowledge of oil field requirements.

Efficient, economical, easily portable and still possessed of the stability of a Standard Rig, these machines are rendering an exceptional service in many fields throughout the world.

Detailed specifications on Parkersburg Wooden Drilling Machines, All Steel Drilling Machines and the new combination Wood and Steel Drilling Machines are available in catalog form, and will be sent upon request. These machines may be secured in either *Chain* or *Rope*.

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The PARKERSBURG RIG & REEL COMPANY

PARKERSBURG, W. VA., U. S. A.

PARKERSBURG EQUIPMENT THE STANDARD FOR COMPARISON THE WORLD OVER

Why does he look at the label?

NOT one man in a thousand possesses expert knowledge that qualifies him to pass critical judgment on a suit of clothes. He has neither time nor the inclination to be an expert on the infinite number of articles he buys.

In his mind that label is a warranty of value —a personal promise of complete satisfaction from the manufacturer. He takes it for granted that the manufacturer whose name appears on the label knows his business. So he buys on confidence.

And the confidence of the buying public has become so integral a part of the success of manufacturer that he dare not jeopardize it by slighting value.

The American Steel Package Company was founded on the ideal of manufacturing a product identified with a high degree of value and during years of manufacture we have constantly strived to add to the esteem in which Defiance Steel Barrels are held among buyers in the oil field.

THE AMERICAN STEEL PACKAGE CO.
Defiance, Ohio

DEFIANCE
Distinguished for Honest Value

HEAVY DUTY TRUCK TANKS

The Kind That Will Stand Abuse

ALL SIZES — ALL TYPES

Send us your inquiry

BROWN SHEET IRON & STEEL CO.
ST. PAUL - - - - MINNESOTA

Hartford; General Petroleum Corp. of California, Los Angeles; Grant Oil Tool Co., Los Angeles; Lucey Mfg. Corp. of Tennessee, Chattanooga; Boykin Machinery & Supply Co., Beaumont; Rotary Disc Bit Co., Los Angeles; Murray Tool & Supply Co., Cleveland, Okla.; Oil City Iron Works Sheveport; Pelican Well Tool & Supply Co., Shreveport; Regan Forge & Eng. Co., San Pedro, Calif.; Asiatic Petroleum Co. Ltd., New York City; Baash-Ross Tool Co., Los Angeles; Honolulu Consolidated Oil Co., Taft, Calif.; Magnolia Petroleum Co., Dallas; Alco Oil Tool Co., Compton, Calif.; E. B. Wiggins, Los Angeles; Shaffer Tool Works, Brea, Calif.; Craig Oil Tool Co., Long Beach, Calif.; Haniel & Long, Dusseldorf, Germany; Humble Oil & Refining Co., Houston.

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"PAN-O-PENN" No. 262,267. Panhandle Refining Company, Wichita Falls, Tex. For lubricating oil.

"ASSOCIAT.. OIL CO." No. 261,231. Associated Oil Company, San Francisco, Calif. For crude petroleum fuel oils, engine distillate, lubricating oils, kerosene, motor spirits, and benzine.

"ASSOCIATED GASOLINE" No. 261,232. Associated Oil Company, San Francisco, Calif. For gasoline.

"NAPOLE..." No. 261,859. California Northern Petroleum Co., Oakland, Calif. For lubricating oils.

"LIXALL" No. 262,191. Wallkill Oil Co., Middletown, N. Y. For lubricating oils and greases.

"STEEM" No. 262,691. The Bartles-Maguire Oil Co., Milwaukee, Wis. For gasoline.

"SUPER-LUBE" No. 262,953. Chesapeake Oil Co., Baltimore, Md. For lubricating oils.

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30983.—**Heavy lubricating oils,** Vienna, Austria, agency.

30993.—**Clear light mineral oil,** Santiago Chile, purchase and agency.

31019.—**Paraffin wax,** Concepcion, Chile agency.

3120.—**Lubricating oils,** Bordeaux, France, agency.

31021.—**Heavy, medium and light lubricating oils,** Bagdad, Iraq, agency.

Repressuring Oil Sands*

By Dr. A. F. Melcher

VARIOUS factors involved in repressuring oil sands to increase recovery are discussed in the accompanying paper. The author was formerly with the U. S. Geological Survey and more recently of the Marland Oil Co. research staff and devoted considerable study to the porosity of oil sands.

Conditions are described which must be considered in repressuring old fields. Location of pressure wells and producing wells is discussed. The three methods of repressuring are taken up and the overcoming of by-passing when repressuring in sands irregular in texture.

The writer will give only briefly some of the physical conditions of a typical virgin oil pool, some of the changes that take place in normal production, and discuss briefly some of the problems of repressuring. It is the subject of this paper to stress some of the factors in repressuring which are not usually given much consideration, but which it is believed will become more considered as these factors are better understood. These factors involve the many ways of making the best use possible of local conditions, especially sand conditions for the most economical production of oil.

A virgin oil pool consists of a reservoir made up of a porous rock containing a fluid mixture, chiefly hydrocarbons under pressure. Also, there must be an impervious cap rock with water usually predominating its pores. The cap rock is generally only slightly porous, or, if of high porosity, the pores are so small that, when filled with water, it is impervious to the hydrocarbons. Sometimes the hydrocarbons have penetrated the cap rock to some degree and there is found gas or oil, or both, in the overlying slightly porous bed. Underneath and on the sides of the reservoir is generally either an impervious rock similar to the cap rock, or the hydrocarbons are resting (floating) on water in a porous rock, usually the same rock in which the hydrocarbons exist.

There is always some form of geologic structure or stratigraphy which offer opportunity for trapping the oil.

In the virgin reservoir rock there is practically equilibrium among the physical and chemical forces, and only those changes are taking place which occur very slowly over periods of geologic time.

Immediately, when a well penetrates the reservoir rock, there comes a change of potential energy into kinetic energy, and the physical and chemical equilibrium of the whole reservoir rock is disturbed as the pool is drilled up. The gas, oil and water may change their positions with relation to the geologic structure and to each other. The character and extent of cementation and porosity of the oil rock are often changed, especially close to wells. In some cases, as in very porous and unconsolidated pay sands, there may be a comparatively large decrease in the porosity of the oil sand due to subsidence when the pressure in reservoir rock is relieved. The gas pressure is soon greatly lowered, and varies in different parts of the pool, even at the same depth due largely to the uneven texture of the oil sand and location of the wells. The vicosity of the oil, as well as the composition of the oil and gas, is changed. More varied and different degrees of saturation occur in the oil rock than at the beginning. Free gas is more widely distributed in various parts of the reservoir. Shooting may cause fracturing and openings in a reservoir rock for comparatively long distances from the well shot. Even small leaks in imperfect casing, the casing seats, imperfect joints, or from poorly plugged wells, may allow contaminating water to come into contact with the fluids in a reservoir rock, causing precipitations in the producing wells or in the oil sand, especially close to the wells.

A glance at the accompanying picture seems to show just another well equipped rig in the piney woods region of eastern Union county, Arkansas. The well will bear watching, however, as its 3000-barrel initial flow opened a new producing horizon at 3152 feet in sec. 10-17-14, on the Gregory farm. The picture is published through courtesy of the International Derrick & Equipment Co., Columbus, Ohio, who furnished the derrick for the test. A map showing the area surrounding the well appeared on page 32 of the April 11, 1928 issue of NATIONAL PETROLEUM NEWS

By the time rejuvenation of old production is usually begun, there has been a very great change in the physical and chemical properties within the reservoir rock, and some change even in the reservoir rock itself. Therefore, before a pool or area is repressured, it is important that a complete study and survey of the geological and physical-chemical factors involved be made to insure the most efficient operation of the properties and that these factors, and changes in these factors, be known, as far as possible throughout the process of repressuring.

It will be the object of the writer to discuss briefly repressuring an old pool by gases, including dry natural gas, wet gas and air.

The various methods of repressuring are usually classified under three headings. First, repressuring an area by actually closing in the producing wells, and bringing up the pressure of an area to a certain desired pressure, and then letting the wells produce under an artificial natural condition. The second method is called the pressure maintenance method; and the third, the usual method of air or gas pressure drive.

Before choosing any of the above methods or any combination of them a complete survey and a study of the factors above mentioned should be made. The first factors to be decided are the spacing of wells, location of key pressure wells, the size of the compressor plant, and necessary equipment for the most efficient economical recovery of oil from the wells. It is also necessary to know the condition of the old wells and the relation of the property under consideration to surrounding properties, as

*Before Mid-Continent Oil Scouts Association Guthrie, Okla., April 27.

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GOTT Water Coolers, 3, 5, 10 and 20 gallon. Order from your supply store.
H. P. GOTT MFG. CO.
KEEP PURE WATER ALWAYS HANDY

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W. G. Guiss, *Sec'y*
A. H. Rogers, *Ass't Sec'y*

well as many other factors due to local conditions.

There is no better way to study some of these factors than by taking a few cores in carefully selected locations in the area to be repressured. Samples should be saved of the waters encountered so that chemical analysis can be made if necessary. There should be made an analysis of the gas, and also a study of the constituents of the oil and effect of the repressuring agent when it comes into contact with the constituents of the fluids of the reservoir in the reservoir rock. The cores will show the nature of the sedimentation, the texture, the porosity, grain size and arrangement, character and extent of cementation, bedding and lenticularity, sand trends and to a certain extent the character of fissures and fractures and general permeability of the reservoir rock. These factors should not just be observed, but should be utilized in attaining the most economical recovery from the wells. The cores will also assist in giving the location of the oil and gas, not only in a vertical direction, but also the horizontal position of the pay sand. They also give much enlightenment on the location for setting packers, casing, tubing, etc., and together with production data and pressures, on estimating the size of pressure plants, and equipment to be installed.

It is the opinion of the writer that in many cases the distance between wells is too great. In some cases, as much as 50% more oil could be recovered by doubling the number of wells. It is necessary, of course, to balance the expense of drilling the extra number of wells and a fair profit against the return from the added production.

The location of pressure wells and producing wells should be so selected that there will not be interchanging of position of gas, oil and water. Every time interchanging of these substances takes place there is loss of energy and oil and gas are often trapped by the water or oil is driven into gas areas where very little of it is recovered. If water encroachment is permitted, it should be so controlled that the water floods the oil sand as uniformly as possible.

The gas-oil ratio of every well in a field should be measured before selecting pressure wells. Generally those wells in the tighter sands and in the gas areas make the higher gas-oil ratio. Wells with a high gas-oil ratio as a rule should usually be selected for pressure wells.

It is believed that the pressure wells, as far as possible, should be placed in the tighter and thinner parts of the oil sand, and conversely the producing wells should be placed in thicker and more open sands. Here again local conditions may rule otherwise, especially where the property is completely repressured and pressure is then released, thereby

producing all the wells by controlled pressure under an artificial natural condition. Some of the pressure wells should be placed in the more open sands areas, especially where large volumes of the gas are necessary. On the other hand, placing the pressure wells in the looser sands and forcing oil to producing wells in the tighter sands increases greatly the amount of work per barrel of oil produced, as it is much easier to force oil from the tighter sands to wells in the more open sands, than it is to force all the oil from the more open parts of the sands, through the tight areas into producing wells.

Where a sand is very irregular in texture, it is difficult to obtain long-continued success by the drive method. In this case, it is better to commence with the pressure maintenance method and continue by this method until there is a great deal of blowing-through, or by-passing of gas. A condition then has been reached in certain areas or trends in the oil sand between the pressure wells and the producing wells where the degreee of saturation has become so small that the gas by-passes freely. In such cases, as long as the pressure is maintained, the oil is kept in the tight sands and by-passing will continue. However, if the pressure is raised and producing wells closed in until the pressure of the whole area is raised, and then maintained for a period of a few days to a few weeks, to give the gas time to go into solution in the oil, there will be very small by-passing of the gas when the producing wells are again opened and allowed to produce under back-pressures with pressure wells closed in. The theory of this method is—that by maintaining pressure on the oil for some time, a large part of the gas injected into the sand will go into solution in the oil. When the pressure is released, the fluid in the pores expands and fills the whole openings, and thereby does not permit much by-passing of gas as the oil is driven to producing wells.

Results of experiments in the laboratory and in the field indicate that there is a critical differential pressure and a critical velocity induced by this pressure which will result in the most economical rate of flow of oil to the well.

It is well known that too high differential pressures will cause by-passing of gas. Too low differential pressures will also cause by-passing of gas with very little, if any, recovery of oil. This is demonstrated by small leaks of gas from wells that are closed in.

So much has been said on unit operation and its importance that it will only be added here that a co-operative plan of operation of a pool should be encouraged.

Get DOUBLE DUTY from this Double-Acting

DEMPSTER

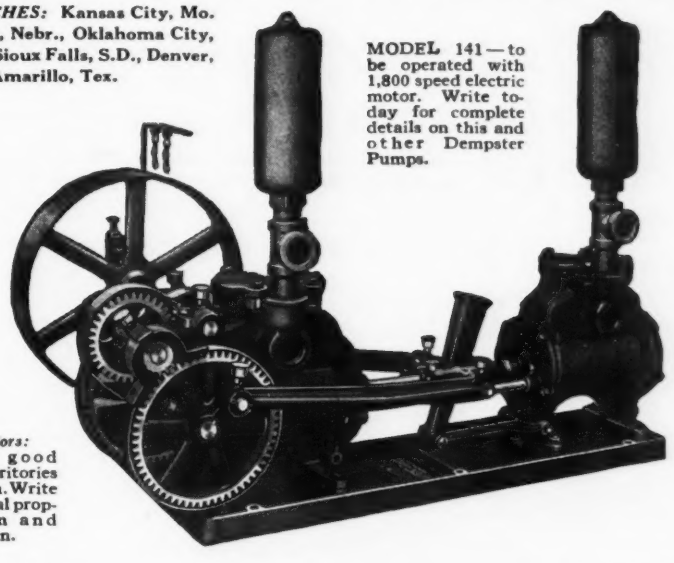
OIL PUMP

Have all the advantages of two pumps opposing each other on one solid base by installing this Dempster double-acting plunger pump. Assures longer life and continuous service at lower operating cost. Has Tobin Bronze piston rods, machine cut gears, specially treated packing in rings and interchangeable parts. Either pump can be operated separately.

DEMPSTER MILL MFG. CO., Beatrice, Nebraska

BRANCHES: Kansas City, Mo. Omaha, Nebr., Oklahoma City, Okla., Sioux Falls, S.D., Denver, Colo., Amarillo, Tex.

MODEL 141—to be operated with 1,800 speed electric motor. Write today for complete details on this and other Dempster Pumps.



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TRAHERN Gasoline and Oil PUMPS
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FOR THE BULK OIL STATION

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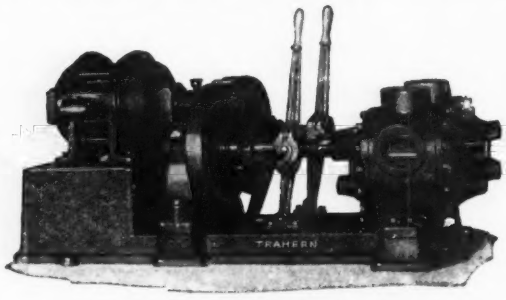

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TRAHERN pumps are specially designed and constructed for handling gasoline and other petroleum products. Furnished in either hand or power drive, with varying speeds and capacities to fit the oil man's needs. Ease of installation, economy of operation and long life are features that distinguish the TRAHERN line of quality pumps. Write for gasoline and oil pump catalog.

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THE BIGGS BOILER WORKS COMPANY, Buchtel and Bank Streets, AKRON, OHIO
Eastern Sales Office: 300 Madison Ave., New York *Western Sales Office:* 35 South Dearborn St., Chicago

FRANK FREDERIC
A curb pump operator who has sold 7,862 gallons a month in a town of 8,000 population during January.

Curb Pumps Get Gallonage This Dealer Proves

AFTON, Ia., May 11.—A curb pump operator, selling 7362 gallons of gasoline in one month in a town of 8000, gives his reason for this success, service and quality of the gasoline.

Frank Frederick, proprietor of Frederick's Garage and the curb pump, at Creston, Ia., says:

"I fill 'em as fast as they get here and I'm always here when they come!" The reason that many curb pumps fail is because of poor service, he believes. The pump that is closed evenings and Sundays cannot build up a following in any locality, as customers will not go into a building to look for some one to wait on them.

"If your curb pumps lack the advantages of location, beauty and advertising," say Spencer & Perry, oil marketers of Afton, "you can offset these by selling a little better gas than is sold through the stations. Just what constitutes a better gas is largely a matter of choice but we have found that an anti-knock gas with good volatility is a wonderful business builder for our pumps. Of course, you cannot buy this type of gas at U. S. Motor prices, but, if you have no station overhead, you can afford to pay the difference.

"Some of the older jobbers may object to this policy on the ground that it is unethical and amounts to price cutting. We reply that it is just as ethical to put your selling expense into the gas itself as into the station."

Spencer & Perry market oil prod-

ucts under the trade name of Royal Rose, which Frederick's curb pump sells. They permit only one dealer in each territory to handle their gasoline and make each dealer feel that whatever business he can build up for his product will belong solely to him.

S. O. New Jersey Books Tell Oil Facts

NEW YORK, May 11.—The series of articles on the oil industry written by Isaac F. Marcosson for the Saturday Evening Post, has been reprinted in booklet form by the Standard Oil Co. (New Jersey) under the title "The Deluge of Oil."

The series constitutes a study of current oil problems, interwoven with the industry's history and romance. Data for it was gathered by Mr. Marcosson through research and travel, which took him half way around the world. Reprints of the articles are furnished by the company on request.

Another booklet, entitled "Petroleum" has been published by the Standard, primarily to take care of the large number of inquiries the company received from students for general information on the petroleum industry. The booklet tells of the various branches of the industry from its early beginnings to the present time. It is written in plain language and constitutes as thorough a discussion of oil history and development as is possible to crowd into some 50 handbook-size pages.

Jensen With Acme Petroleum

CHICAGO, May 11.—E. E. Jensen, who until recently was in charge of the Red Hat Motor oil department of the Independent Oil Men of America, recently became identified with Acme Petroleum Co. He is in charge of light oils in the tank car sales department.

Mr. Jensen succeeds H. A. Scott, who recently opened an oil marketing office here. Mr. Scott represents the Willock Oil Corp. of Pittsburgh as well as some Mid-Continent refiners.

Discoverer of Grozny Field Dead

HOUSTON, May 11.—An American who was credited with discovering the Grozny oil field, in Russia, died in New York, May 4. He was Almon Elias Culbertson, 72, geologist and mining engineer. As one of seven young Americans sent to Russia 40 years ago to investigate conditions he took an important part in that country's early development for petroleum. Later, he conducted a school for Russian boys to teach them the rudiments of oil well drilling.

Super Speed Pumps!

"Just what the name says"

YOU save money when you buy a Super Speed Gasoline Pump—and you save money every day it is in operation.

These pumps are speedy, easy to operate, accurate and trouble-proof. A pump that will meet with your ideals at a price which will surprise you.

Illustration shows our Improved Model 7—a Positive Stop, Hand Operated, Visible pump made in 5 and 10 Gallon Capacities.

Illustrated Folders with complete Information, Specifications and Prices will be mailed you for the asking.

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Anti-Knock High Compression MOTOR FUEL

Benzol Equivalent in Excess of 50%

YOUR natural desire to sell the best should suggest that you investigate SUPER-RATIO Motor Fuel. It has a Benzol Equivalent in excess of 50 per cent and is the result of more than a year of continuous research, laboratory experiments and rigid road tests. It meets the requirements of the high compression ratio motors and increases their power per gallon from 25 to 35 per cent. In motors with a low compression ratio, SUPER-RATIO gives a power increase of from 10 to 15 per cent. SUPER-RATIO improves engine performance; it gives more miles per gallon, quicker acceleration, more power when it is needed in the mud or on the hills—and there's not a knock in a train load. SUPER-RATIO will bring your customers back again and again for more.

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Fuel Oil

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The Derby Oil & Refining Corporation

PRODUCERS, REFINERS, MARKETERS

WICHITA, KANSAS

Prize Winning Roadside Stands

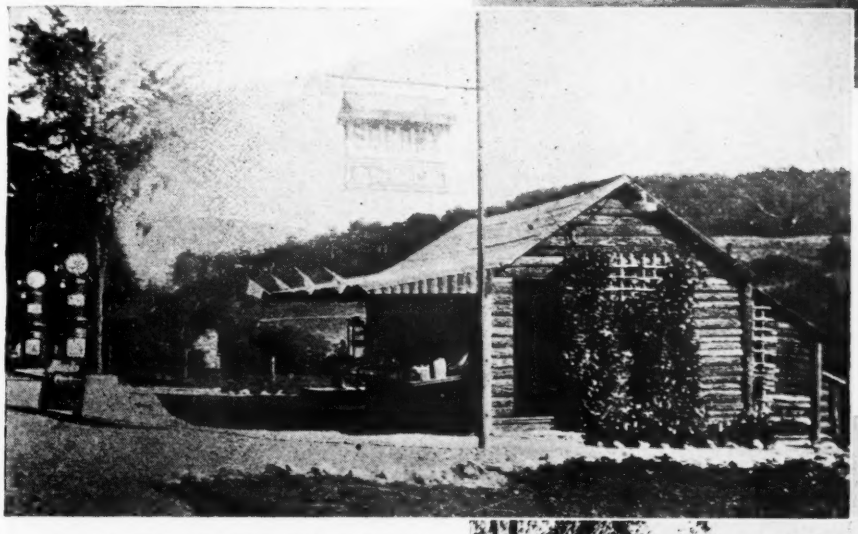
A NATION-WIDE movement for improvement of roadside filling stations and refreshment stands is under way. The purpose is to eliminate unsightly and unsanitary stands which mar the beauty of public highways.

The four objectives of the competitions, as announced, are:

1. To offer a series of small prizes for the best photographs of existing stands with the idea of getting information concerning prevailing conditions. This contest closed Dec. 15, and announcement of awards was made Jan. 2.
2. To offer a series of relatively larger prizes for architectural plans or drawings through which it is proposed to develop better conditions. This contest closed March 15.
3. By a series of rebates, or by underwriting, to insure construction.
4. To offer annual prizes over a term of years for the good appearance and up-keep of those stands which have been built as a result of the second and third competitions.

Above—First prize winner "Pinkie's Pantry" owned and operated by Norma M. Bamman, Plainfield, N. J.

* * *

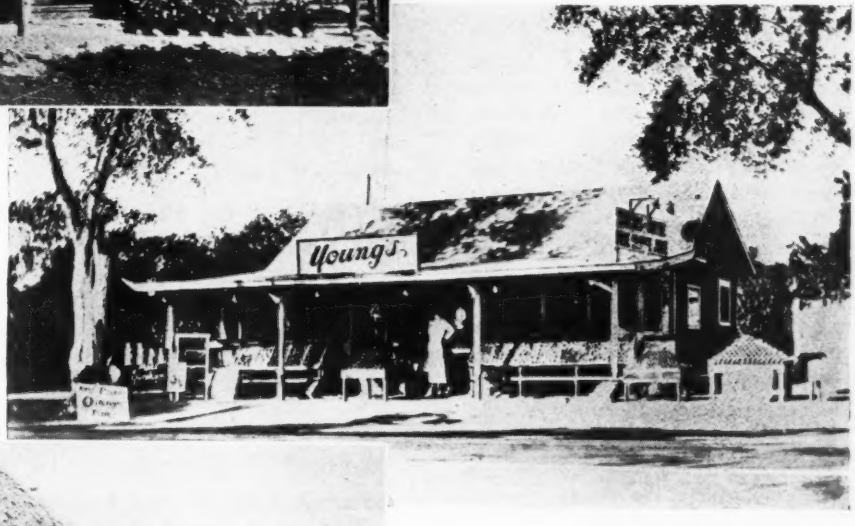


Left—Second prize winner is "The Bee Hive Cabin," owned and operated by George A. Parker, 34 River St., Hoosick Falls, N. Y.

The campaign was started by Mrs. John D. Rockefeller, Jr., who made an initial contribution of $7500.

Winners of the first contest have just been announced by the Art Center, New York City, and the American Civic Association, Washington, D. C., which act as judges.

Accompanying are the pictures of four winning stands in first contest.



Above—Third prize winner. This is owned and operated by W. J. Young, Ontario, Calif.

* * *

Left—Fourth prize winner is "The Hut" with straw thatched roof and all. It is at San Diego, Calif., on Morena Blvd., and is owned and operated by Helen Dana.

INDEX TO ARTICLES

Selected Bibliography on Petroleum Technology

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. The "Decimal Index of Petroleum Technology" gives the key to the articles. This book is published exclusively by NATIONAL PETROLEUM NEWS as a service to its readers. Price $1.00. Abstracts started April 4, 1928.

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Uren, Lester C. **516.72**

"Selection of Power Equipment for Oil Well Pumping Service." Part 2

National Petroleum News, April 25, 1928, p. 69-80.

Second of two articles, in the general series on oil well pumping, devoted to application of electric power to this oil field service. Data on power requirements for pumping and well pulling service are given. Modern practice in the generation and transmission of electric power for oil field service is described. Power rates and costs in several regions are given. Conclusion is that the electric motor possesses many advantages which would appear to make its use desirable under certain conditions. Illustrated.

Cummings, H. K. **214.2**

"Results of Two Detonation Surveys"

S. A E Journal, Vol. XX, No. 4, pp. 448-457 (April) 1928.

This paper is a description of various methods used by various investigators for measuring comparative anti-knock value of fuels, particularly the types of engines used for testing.

Halbert, Ward K. **161.12**

"Bogey of Daily Overhead Costs Spurs Station Men to Greater Sales."

National Petroleum News, May 2, 1928, p. 69-75

This article describes and illustrates a graphic method of showing service station sales, in relation to costs of operating the station, worked out by the L. V. White Co., Kalamazoo, Mich. At each station a chart is posted daily by the station crew. One line on the chart represents the number of gallons of gasoline, including relative amounts of motor oil and grease the station must sell a day to meet its overhead costs. The station operators chart their own sales of gasoline daily. When the line showing their sales reaches a certain distance above the line showing station costs the station crew receives a bonus on such sales.

Cartwright, Lon D., Jr. **305.111.613.1**

"Sedimentation of the Pico Formation in Ventura Quadrangle."

Bulletin American Association of Petroleum Geologists, Vol. 12, No. 3. March, 1928, pp. 235-269.

A mountainous region along the Pacific coast, between Santa Barbara and Los Angeles, is discussed. The sedimentary strata include rocks of Cretaceous, Tertiary and Quaternary age. Comparison of the Pico formation with older bedding indicates detrital deposition of the first named. A map accompanying the article shows Pliocene geology in an area where the Ventura Avenue field is the outstanding petroleum development.

Carpenter, Everett **305.**

"Geology of Washington county"

Oklahoma Geological Survey Bulletin 40-V, January, 1928, 40 p., 30 cents.

One of a series of county reports on Oklahoma. Washington county contains some of the oldest oil pools of Oklahoma. It has been thoroughly tested and, as the author says, probably a greater proportion of the acreage in the county has produced either oil or gas than any like area in the Mid-Continent field. The report describes strata and structure of the county and summarizes the principal data on several of the important pools. Several structure maps are included. Cross index 111.32.

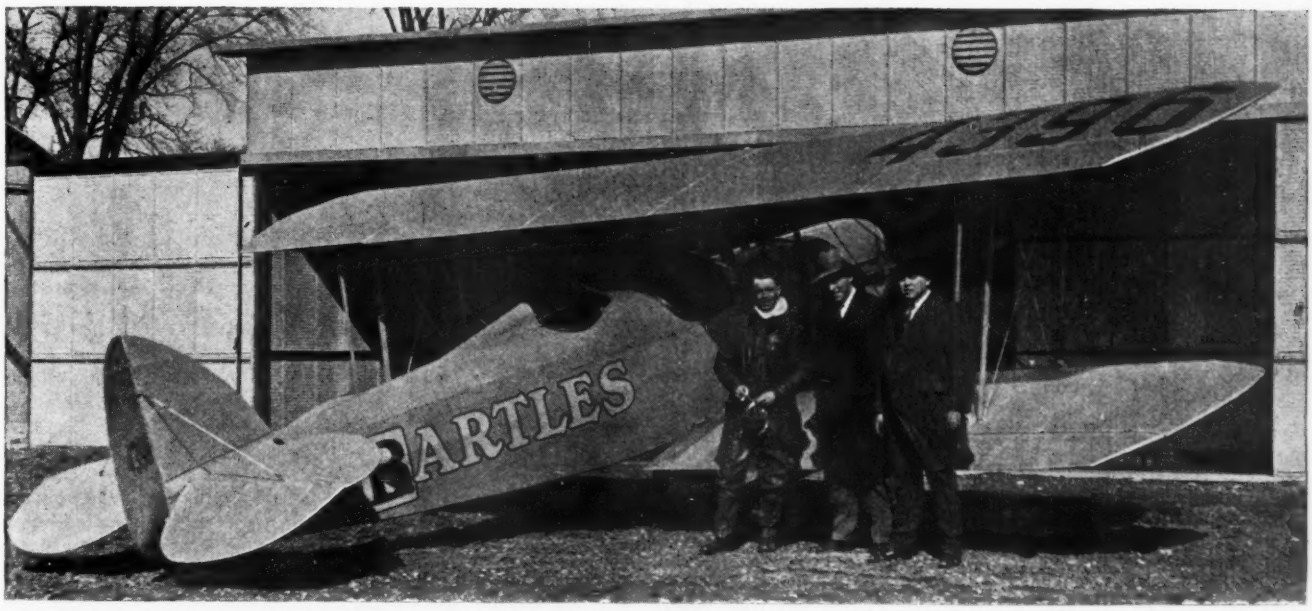
Wagner, Paul **694.6**

"Belting Records Devised to Provide Uniform Data on Service"

National Petroleum News, March 28, 1928, p. 62-63.

This article shows the advantage to the operating company of keeping accurate performance records on oil field belts. It describes and illustrates the form for a service record of belting devised by the sub-committee on belting of the Standardization Committee of the American Petroleum Institute. This article is the third of a series appearing in National Petroleum News on this subject. Earlier articles appeared in the Jan. 11, 1928, and Feb. 1, 1928, issues.

Bulk Plants Landmarks for Flyers, Is the Move in Wisconsin



Left to Right: L. J. Holonbeck, pilot; H. J. Dolan, salesman, and J. M. McLaughlin, vice president, Bartles-Maguire Oil Co., Milwaukee. Photograph taken at Milwaukee County Airport just before they jumped off to take the other two pictures shown with this story

By Ward K. Halbert
N. P. N. STAFF WRITER

FLYING is coming to the fore in Wisconsin and oil jobbers are strong in the movement.

Some of them are flying and others who do not fly are maintaining airplanes for advertising purposes and to demonstrate the adaptability of their products to aviation. But in one respect they are unanimous; they recognize the airplane as a big potential customer and are catering to its needs.

All over the state Independent oil jobbers are making friends with the "bird men" by making it easy for them to find their way. Most of this has come about since March 14, when three Milwaukee aviators came before the Wisconsin Independent Oil Jobbers association here and asked them to help make Wisconsin an easy state to fly in.

The result has been that a great many jobbers have converted the roofs of their warehouses and the tops of their bulk storage into airway markers, painting signs on them that can be read easily from the air. The fact that a great many of the Wisconsin jobbers do considerable flying has made the movement easy. They know how much help the name of a town on a flat roof can be.

Almost any aviator of experience has a story to tell about being lost, with no place to land, and no hint from the ground as to his own whereabouts. There may be a town in sight but he never saw it before and does not know its name. He has a map but he cannot learn from it where he is. One thing is lacking. The aviator needs to know the name of that town.

Many an aviator has ventured too close to the ground in an effort to learn the name of the town he was over. The only place it is sure to be found is on the railroad station. Even there the letters are not large. The sign is nailed to the outside station wall, sometimes back under the eves of the roof. To see it the flyer must venture dangerously close to earth, take chances with telegraph wires and poles and even then he may not be able to read it.

Naturally it is the small town that needs the markers most. Big towns have distinguishing features discernible from the air. Besides, most cities have landing fields now. But it is the town of 1000 to 20,000 population that needs marking. It is one of these that an aviator is likely to sight first after drifting off his course, due to wind or fog. It is then that he wonders how far he is from a landing field.

Bartles-Maguire Oil Co. of Milwaukee has taken the lead in the airway marking campaign, for two reasons. First, Henry J. Stolz and J. M. McLaughlin, vice presidents of the company, both fly a great deal. They both have looked at the ground from a few thousand feet up and wished they could see something familiar to indicate their whereabouts.

The second reason is that Mr. McLaughlin is secretary of the Wisconsin Independent Oil Jobbers association and as such has been campaigning to get tanks and roofs marked. He has to be consistent and practice in the oil business what he preaches to the association. He made a special flight to take the pictures shown with this story for NATIONAL PETROLEUM NEWS.

The U. S. Department of Commerce has some printed regulations for painting the roofs of buildings as guides to aviators. The department recommends sizes and shapes of letters, colors of letters and backgrounds, and so on, but they are only recommendations. They should be complied with, if possible, for the sake of easy visibility but any sign is better than none at all to a lost aviator.

Three recommendations are of primary importance. (1) The letters spelling the name of the town should be as large as possible, and (2) they should be of contrasting color with the roof. Both of these are for the same reason, so the aviator can read the name of the town from a safe altitude. (3) the tops of the letters should be to the north like the top of a map. That is standard practice and, if it is followed out, any sign will give the aviator direction as well as location.

The government recommends simple block letters in bright yellow on a black background, but black backgrounds are not always desirable for the occupants of a building and a black roof is especially bad for a

What every jobber wants—

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2. Absolute territorial protection.
The backing of a reliable old-established refinery.
Ample margin of profit.

is found in the Penn-Empire franchise

IF YOU'RE not enjoying the advantages of a franchise like that which we offer you, you are not getting the most from your source of supply. If you have to listen to comebacks on quality; if your territory is a "free for all"; if you feel that there's a possibility of getting "caught" in the shifting, ever-changing currents of the oil business; if you are not altogether satisfied with your profits, you'll want to know more about our proposition for wide-awake progressive jobbers.

When you ally yourself with Empire Oil Works, your efforts are combined with those of an old established stable refinery. The brand name,* too, is registered in the United States and Canada. You can safely pin your business to Penn-Empire without fear of change, and, what is more, without fear of depreciation in the quality of the product it represents.

Write us quickly while your territory is still open for exclusive Penn-Empire representation.

*Penn-Empire Oils also available to jobbers for resale under their *own* brand name, if desired.

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EMPIRE OIL WORKS, Inc., Oil City, Pa.

PENN-EMPIRE

MOTOR OILS and GREASES

When you buy PENN-EMPIRE you get the best

gasoline tank because it increases evaporation. Most gasoline tanks are white or silver in color and the Wisconsin oil men are using black outline letters on silver tanks. The aviators say it is satisfactory.

The aviators had two main reasons for appealing to the oil industry to put markers on their tanks and buildings. One was they felt they had a right to ask something of the oil men from whom they bought their gasoline and oil. The chief reason, however, was that a bulk station is the ideal establishment to paint a sign on because it is the easiest thing for an aviator to find and recognize from the air.

When a flyer is off his course and looking for a town from which he may get his bearings, the natural thing to do is to follow a railroad or a highway. Either will do, but a railroad is better because an automobile road looks like the rest of the country after a rain or while a rain is in progress. It is always possible for an aviator to follow two shining steel rails, even if the day is dark and the visibility bad. Moreover railroads do not make sharp turns like automobile roads.

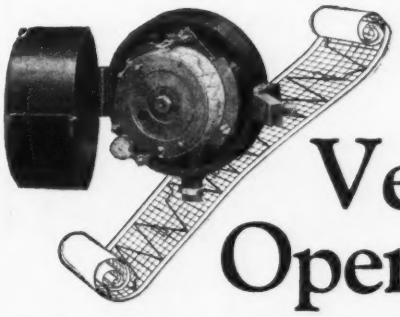
If an aviator is following a railroad trying to find a town, the first recognizable thing he sees is an oil man's bulk station. The railroad station and the freight depot cannot always be identified from high altitudes. They look like other warehouses in the neighborhood. They are just dingy looking buildings when viewed from aloft. But not so with the oil bulk plant.

Oil men keep their tanks painted bright as a rule. They are nearly always arranged in some sort of order and the ground around them is black because the oil man keeps vegetation killed and the ground oiled to prevent dust. So a cluster of oil tanks, whether vertical or horizontal, make a striking geometric figure on the ground. That is the aviator's tip to come closer to the ground if he sees anything on the tops of the tanks or a nearby roof that looks like letters. If the letters prove to be a sign painted for his accommodation he can read it from a considerable height.

The fewer words he has to read the better he will like it. The ideal sign has only one word (the name of the town) and an arrow pointing toward the nearest landing field. Above the stem of the arrow should be a figure telling how many miles away the field is, and the letter "M" should be below the stem of the arrow, standing for "Miles."

The landing field does not necessarily mean an airport. It can be a good level cow pasture, just so it is a safe place to land. It should be marked with a white cross which can be made of two strips of white cloth, 6 x 18 feet, pegged to the ground at right angles and kept

Obtain This Composite Record



# of Vehicle Operation

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Tells ALL the story

The OHMER Recordograf produces a chart which tells how far the vehicle traveled and the time consumed in doing so. It shows the duration of periods in which the vehicle did not run. It shows the exact minute when the vehicle was started or stopped. It indicates the speed of travel during each moment of operation.

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May be placed under hood, on instrument board, on frame, or wherever wanted. Transmission driven. Large figures snap into full position.

This ability to combine both time and mileage data puts the OHMER Recordograf in a class by itself. The scope of the information it produces is truly remarkable. And all of this information is required for the proper control of vehicle operation and the correct analysis of transportation costs.

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Replaces hub cap of any car or truck. Figures always right side up.

Write or wire today for complete information about the Recordograf and other OHMER mileage meters.

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FARE REGISTER COMPANY
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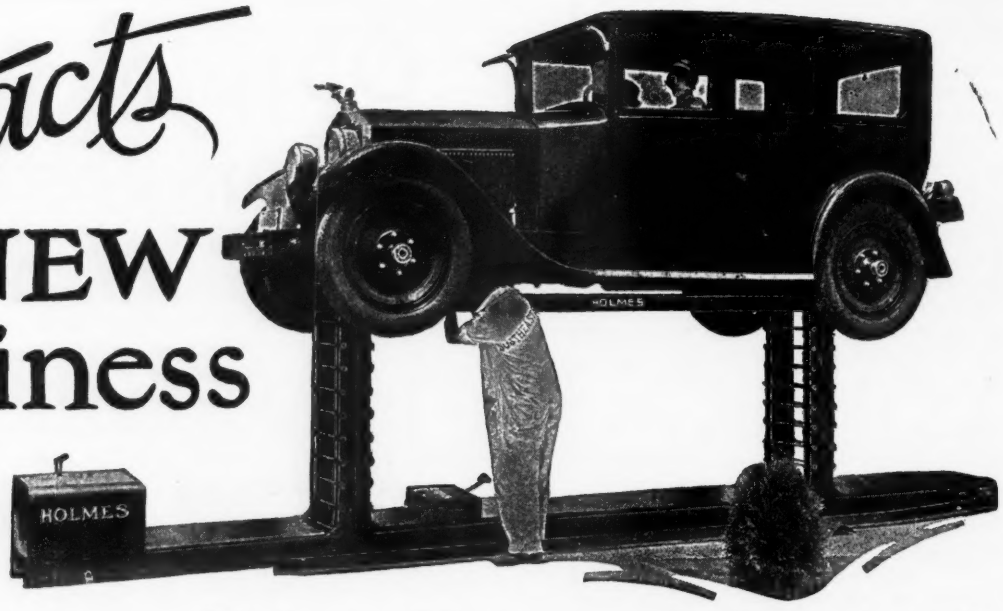
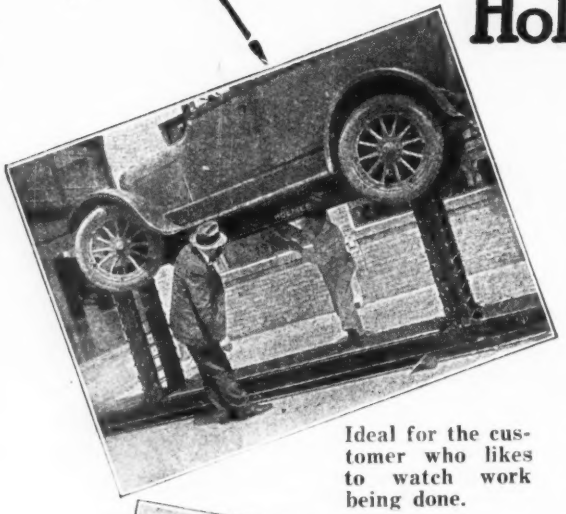
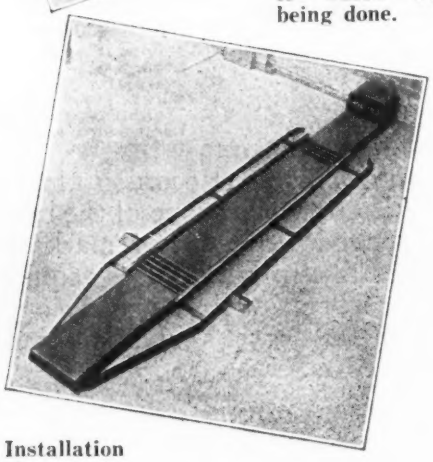


Holmes Universal Auto-Lift



Ideal for the customer who likes to watch work being done.



No Installation Cost. As easy to drive over as to park the car.

The motorist who sees your Holmes Universal Auto-Lift operate is immediately attracted and knows that you are prepared to give exactly the type of service he wants—clean, quick, thorough and convenient.

There is no difficulty in driving over the Holmes—no tricky inclines to drive up and no centering the car. Customers pass in and out of cars without obstructions; no greasy posts to block the doors or dirty pits to soil their clothes. It is an ideal service and brings new business every day.

The motorists who like to check your work are thoroughly satisfied. Every part of the car is instantly visible and every working point is brought to the exact height for most convenient service. Washing, polishing, greasing, doping—every operation is speeded up to the utmost. Crank-case, clutch and differential can be drained without interference; wheels, steering gear, shackle and spindle bolts, springs and universal joints are always completely accessible.

NO INSTALLATION COST

The Holmes Universal Auto Lift is shipped in one complete unit with only the guide rails detached. No pits, no posts, no concrete work, no bearings or pulleys and no air or plumbing connections. Simply attach the guide rails, connect the self-contained electric motor; in 30 minutes time the Holmes is ready to operate anywhere—upstairs or down; indoors or out.

Write today for descriptive folder and complete information.

ERNEST HOLMES COMPANY

CHATTANOOGA TENNESSEE

Solid black letters on gasoline storage tanks are not desirable because black paint on a tank tends to increase evaporation. But large outline letters (the letters were retouched in this photograph) serve the aviators as well and meet the oil man's objection. This is a Bartles-Maguire Oil Co. plant on the edge of Milwaukee. The word "Milwaukee" is on a 100,000-barrel tank and the airport arrow on a 40,000-barrel tank

painted. But whether a landing field is convenient or not, the name of the town on the warehouse roof or the top of a tank is a great help to a flyer.

Ordinarily, if a flyer knows the name of the town he is over he can take care of himself. His map will serve him, unless his fuel supply is getting low. He can find the town on his map, get his direction from the position of the sign or from his own instrument and proceed to safety.

The Wisconsin jobbers say their catering to aviation has given them great advertising advantages. People are interested in aviation. They approve an oil company that arranges a landing field and keeps it marked. Besides, the government keeps aviators advised of every new landing field and the town gets favorable publicity.

The air information division of the U. S. Department of Commerce Jan. 23, issued a bulletin telling many of the details for marking to direct aviators. It has been given extensive publicity but not in the oil industry. It follows:

"The roofs selected should be of tile, shingle, tin, or other metal, or of slate. Gravel and pitch roofs should be avoided, if possible.

"A simple block letter in chrome yellow with a dull black background should be used. If the roof has a slope of over 30 degrees, the sign should be painted on both sides.

"The width of letters such as 'M' or 'W' should equal two-thirds their height—other letters in proportion. A spacing of one-fourth the height should be used between letters. Letters should be not less than 12 feet in height—preferably as large as possible. Letters less than this minimum cannot be seen at a considerable height.

"Sufficient space not being available for the full name, clear abbreviation should be used.

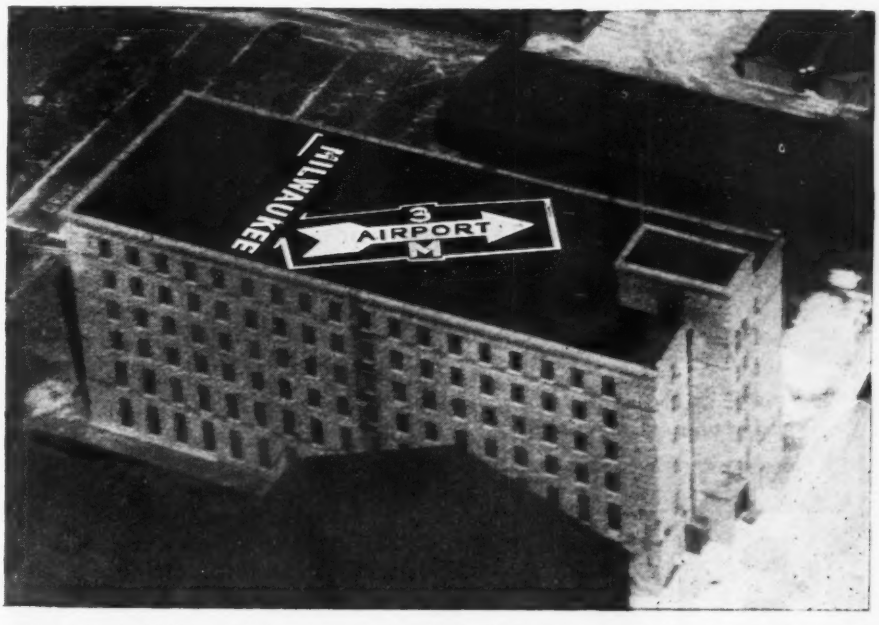
"Where gravel or pitch roofs offer the best location, wooden letters may be elevated above the roof or the sign may be painted on a dull black background formed of wood raised on legs above the roof proper.

"Where raised letters alone are used, the gravel roof beneath should be so treated as to give a darker ground than the gray of the gravel.

"The name of the city should be used, with an arrow pointing in the direction of the city's airport and the mileage thereto.

"It is of importance that these names be illuminated all night. Ordinary floodlights may be employed, the number depending on the area to be illuminated and type of floodlight used.

"Advice of such airmarks, with location, should be sent to 'Information Division, Department of Commerce,' for inclusion in its Airway Bulletins or other notices to pilots."



Since the oil jobbers started it other Wisconsin business men are offering aid to flyers. The sign on the roof of Norberg Manufacturing Co.'s six-story plant at Oklahoma Ave. and Chicago road informs passing aviators that the town is Milwaukee and that an airport is three miles to the northwest. Letters in the word "Milwaukee" have their tops to the north

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New Patents

May 8, 1928

REFINING

Process for Distilling Mineral Oil—Arthur E. Pew, Jr., Bryn Mawr, and Henry Thomas, Ridley Park, Pa., assignors to Sun Oil Company, Philadelphia, Pa. Filed Feb. 23, 1924. No. 1,668,602.

Cast Return Bend for Oil Stills and Method of Making the Same—Frederick E. Key, East St. Louis, Ill., assignor to Key Boiler Equipment Co., East St. Louis, Ill. No. 1,668,680.

Oxidation of Hydrocarbons—Joseph R. Scanlin, Port Arthur, Tex., assignor to The Texas Company, New York, N. Y. Filed Jan. 20, 1926. No. 1,668,871.

Process of Refining Mineral Oil—Harold T. Maitland, Sharon Hill, Pa., assignor to Sun Oil Company, Philadelphia, Pa. Filed Dec. 21, 1921. No. 1,668,920.

Treating Emulsions—Louis Burgess, Bayonne, N. J., assignor to Standard Oil Development Company. Filed March 20, 1923. No. 1,668,941.

Process for Recovery of Sulphuric Acid from Acid Sludges—Jan D. Ruys, Wilmington, Calif., assignor to Shell Company of California, San Francisco, Calif. Filed April 18, 1927. No. 1,669,102.

Art of Refining Oil—Cary R. Wagner, Woodriver, Ill. Filed July 17, 1922. No. 1,669,151.

Art of Refining Oils and Other Liquids—Oscar Werner, South Bend, Ind. Filed Nov. 10, 1925. No. 1,669,182.

Art of Refining Oils—Cary R. Wagner, El Dorado, Ark. Filed July 17, 1922. No. 1,669,180.

Condenser—Francis B. Sando, East Orange, N. J., assignor, to Foster Wheel Corporation, New York, N. Y. Filed Sept. 5, 1924. No. 1,669,210.

Heat Exchanger—Dion K. Dean, Rahway, N. J., assignor to Foster Wheeler Corporation, New York, N. Y. Filed March 8, 1926. No. 1,669,291.

PRODUCTION

Tube or Rod Pulling Mechanism—Richard C. Mason, Tulsa, Okla., assignor to The Mason Corporation, Tulsa, Okla. Filed Nov. 20, 1925. No. 1,668,649.

Oil-Field-Emulsion Treating Means—Frank Gardner, Dallas, Tex. Filed April 24, 1925. No. 1,668,766.

Drilling Bit—Charles A. Towne, Drumright, Okla. Filed June 11, 1924. No. 1,669,360.

Clamping Device for Oil-Well Pipes—Marvin B. Davis, Kansas City, Mo., assignor to George Krell, Sapulpa, Okla. Filed July 29, 1925. No. 1,669,401.

NATURAL GAS

Meter—John Henry Wiggins, Bartlesville, Okla. Filed May 31, 1922. No. 1,669,315.

MISCELLANEOUS

Machine for Making Asphalt Shingles—Robert T. Johnston, New Brunswick, N. J., assignor to The Flintkote Company, Boston, Mass. Filed March 20, 1923. No. 1,668,563.

Manufacture of Fuel Briquettes—Alice Marion Hart, London, England, assignor to Hart Carbon Fuel Company, Limited, London, England. Filed Aug. 9, 1927. No. 1,668,643.

Apparatus for Extracting Oil from Shale—William Rhoades, San Leandro, Calif., assignor to Rhoades Shale Oil Company. Filed Dec. 3, 1923. No. 1,668,820.

Tool Joint—Pierre Miks, Houston, Tex. Filed May 7, 1921. No. 1,668,921.

Dome for Tanks—Joseph J. Root, Jr., Westport, Conn., assignor to Union Tank Car Company, Chicago, Ill. Filed July 29, 1926. No. 1,669,022.

Carbonization of Coal—Walter Runge, East Orange, N. J., assignor to International Coal Carbonization Company. Filed Nov. 6, 1924. No. 1,669,023.

Carbonization of Coal—Walter Runge, East Orange, N. J., assignor to International Coal Carbonization Company. Filed Nov. 6, 1924. No. 1,669,024.

Process for Making Oil Gas—Cyrus A. Phelps, Huntington Park, Calif., assignor to Albert J. Anderson and Mary G. Barmore, Los Angeles, Calif. Filed March 26, 1924. No. 1,669,172.

Fuel for Internal-Combustion Engines and Motors—Chester A. Walter, Philadelphia, and Francis B. Muhlenberg, Oakmont, Pa. Filed May 10, 1924. No. 1,669,181.

Treating Emulsions—Carl F. Pester, Roselle Park, N. J., assignor to Standard Oil Development Company. Filed March 20, 1923. No. 1,669,379.

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Turn to that page, with rates, at back of this issue.

Our Industry — A Page of Facts and Personalities

National Petroleum News

By Paul Wagner

Col. E. H. Hilpp of Louisville, Ky., president of the Independent Oil Men of America, likes to tell the story of the southern darkey who was showing a northern visitor how adept he could be in handling a blacksnake whip.

After running his hand over the whip to test its pliability and to "get its feel," the darkey nipped a honey bee off a blossom without injuring the flower. The visitor appeared amazed, but suspected the feat might have been accidental. Soon, however, the darkey again cracked the whip and two bumblebees feeding on a red clover blossom fell. Again the blossom was uninjured.

The visitor was convinced, but wanted a further demonstration. Seeing a hornet's nest suspended along the roadside he asked the darkey whether he could clip it off with the whip.

"Yassah, Boss, Ah could," the darkey replied, "but Ah ain't goin' to; dem hawnets is organized."

* * *

William B. Sutton, Southern division general manager at Houston of the Vacuum Oil Co.'s field organization, entertained New York officials on a west Texas trip the last week in April. Included in the party were C. W. Hadley, chairman of the manufacturing committee and New York head of the crude oil department; J. C. Chase and T. O. Lane, also of the crude oil department.

* * *

The F. H. E. Oil Co., one of the important operating companys in the Settles-Roberts deep lime area of Howard county, Texas, got its corporate title by shortening the names of its three owners to their initials and combining them. William Fleming, F. F. Hardesty and R. A. Elliott, all of Sherman, are the owners. Mr. Hardesty, however, spends most of his time at Big Spring, a Texas & Pacific railroad base northwest of the field.

* * *

William Schermerhorn of Ardmore, Okla., head of the oil company that bears his name, was accompanied to the Howard county producers conference at Fort Worth, April 28, by George C. Matson of Tulsa, who directs details of operations. Mr. Matson is also widely known as a geologist. He was for years connected with the United States Geological survey before engaging in the operating branch of the oil business.

CARROLL H. WEGEMANN

The camera caught Carroll H. Wegemann, chief geologist of the Pan American group companies, New York City, with one of his characteristic half-smiles. Mr. Wegemann always finds time to be pleasant, notwithstanding the industrial duties that frequently take him away from headquarters as far as Maracaibo and Tampico.

Before the Standard Oil Co. of Indiana acquired stock control of the Pan American companies and made Mr. Wegemann chief geologist of the consolidated interests, he headed similar work for the Midwest Refining Co., another Standard subsidiary, at Denver.

Mr. Wegemann is a native of Lake Mills, Wis., where he was born March 26, 1879. He got his B.S. degree in 1903 and his M.A., in 1907, at the University of Wisconsin. After teaching one year at the University of Illinois he was with the United States Geological Survey from 1907-1917. Then he represented successively until 1921 the Franco-Wyoming Co., Cactus Petroleum Co., and Western States Oil & Land Co. He then was chief geologist of the Midwest Refining Co. until transferred to the Pan American group organization. He is the author of many U.S.G.S. papers and bulletins and holds memberships in the various scientific societies.

* * *

Shafter's Lake, in Andrews county, Texas, may be found eventually to provide a clew to sub-surface structure in its part of the Permian salt basin region. If it does, then it will go down in petroleum records as one of the few surface evidences of geology that the oil man may utilize in exploratory work over a vast domain.

What this inland salt sea means geologically, if anything, is yet to be interpreted. The lake was named after General Shafter of the United States Army, who led a group of negro soldiers in driving Indians out of Texas years ago.

After the soldiers had drunk their canteens dry, in a land where wells are found only at great depth, they came upon the tortuous lake glistening before them. Taking no note of the white deposits on the banks of the lake the soldiers drank their fill of the brackish water, so the story goes, and died.

It has been known as Shafter's lake since that time.

* * *

C. D. Fletcher, paleontologist in the geological department of the Gulf Refining Co. of Louisiana, at Shreveport, has been spending some time in Mississippi, checking over formation data and petroleum possibilities.

* * *

Officers of the Amerada and Rycade companies recently entertained three British oil financiers on their visits to producing fields in America.

The visitors were the Hon. Clive Pearson, brother of Lord Cowdray; J. B. Body and Henry W. Masters, all of London. E. L. DeGolyer of New York, president of the Amerada, accompanied them to the Mid-Continent and southwestern fields. John M. Lovejoy, general manager of the Amerada at Tulsa, was a Mid-Continent host.

In Texas, Adrian C. Moore, vice president, and Fred Dallas, field superintendent, of the Rycade assisted in doing the honors.

* * *

E. F. Sunday has been elected business manager and Mose Poolaw field captain of The Texas Co.'s west Tulsa refinery baseball team. The club will be a member of the Tulsa Petroleum League this summer.

* * *

A. M. Brereton, auditor, has completed his twentieth year in the service of the Pure Oil Co. He was placed in charge of the present auditing department in 1919. Previously he had been with subsidiary or associated companies of the Pure.

* * *

Louis C. Chappius, formerly assistant chief geologist of Richfield Oil Co., is now attached to the staff of A. E. Starke, consulting geologist, of Los Angeles.

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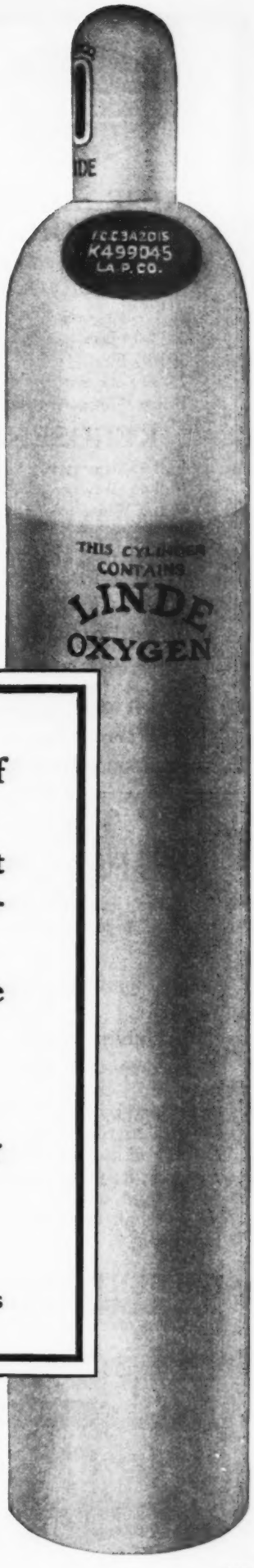

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Full 45 Gravity
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Water White color and uniform quality

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G & B Pipe Sealing Compound

when used on well cut male threads gives a real sealed job.

This compound is a specially prepared cement, originally developed by Gilbert & Barker for use in the manufacture of G & B oil and gasoline pumps. In using it, you are gaining the advantage of the same tight joints that characterize these pumps.

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New Equipment to Improve Plants

Personal Notes of the Manufacturers

National Petroleum News

Butler Mfg. Co., Kansas City, has published a 60-page book on complete ready-made steel buildings for various purposes. Different types of drive-in service stations, including elaborate designs, are featured. The combination steel warehouse and garage is also described. The catalog also shows steel partitions for the application of plaster, for composition wall material, steel frame, steel roof and sash. Tile or stucco facing could also be applied to the steel frame if desired. Several pages are devoted to steel hangars.

This company is among those which has adopted the airplane for commercial use. J. B. Bogart, the company's airport engineer, will make calls on individuals interested in hangars or steel buildings.

* * *

Erie Meter Systems, Inc., manufacturers of gasoline dispensing equipment, has moved into new headquarters at 506 E. Tenth St., Erie, Pa. Production capacity has been increased. The building has three stories and a basement.

* * *

Chicago Pneumatic Tool Co., New York City, has off the press Catalog No. 561 devoted to its pneumatic tools and accessories. Various types of drills, hammers, hoists and other tools are described. Dimensions, specifications and illustrations are furnished of all tools. The rivet tool section includes rivet set dimensions and drawings of styles of rivet set cupping.

* * *

Merit Equipment Corp., April 9 purchased the good will, plant and land of the Merit Oil Equipment Co., Cleveland, O. The former, while continuing to make the same type of dispensing equipment for the marketing of petroleum products will specialize on producing a special featured line.

Many new ideas involving both products and sales policies will be enforced soon as a result of research work the company has been carrying on.

Besides A. L. Wertz, as president of the Merit Equipment Corp., the other new officers are: W. S. Bayer, vice president; G. Webb Shillingford, treasurer; and Francis H. Beam, secretary. Under the new plan, Mr. Wertz will direct sales while Mr. Shillingford will be general manager in addition to being treasurer. Mr. Shillingford is a new member of the organization.

Graver Corp., East Chicago, Ind., manufacturer of oil refinery and marketing equipment, has moved its New York City offices to 3519 Grand Central Terminal Bldg.

* * *

The Foxboro Co., Inc., Foxboro, Mass., has opened a branch office in the Magnolia Bldg., Dallas. J. B. McMahon, district manager, will have as his associates R. L. Mallory and C. L. Bryan. All problems involving use of controlling, recording and indicating instruments for flow, temperature, pressure and humidity will be handled from this office, which includes in its territory Texas and Louisiana and the southern sections of New Mexico and Arkansas.

* * *

Ingersoll-Rand Co., 11 Broadway, New York City, has published a 44-page bulletin on ER and FR compressors and vacuum pumps. These are the small and intermediate size machines made by the company.

The compressors are of straight-line type and built as single-stage, two-stage or three-stage units, for handling either gas or air. ER compressors and vacuum pumps are arranged for driving by short or long belt or by direct-connected synchronous motor. FR units are steam-driven.

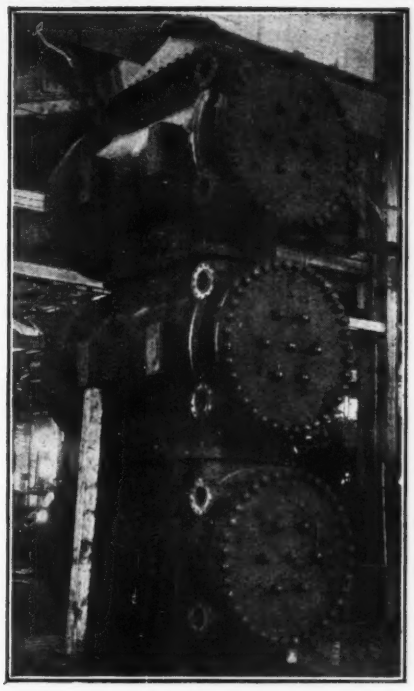
Chief features of the single-stage air compressors of this type are simplicity of design and operation, enclosed dust-proof construction, accessibility of running parts, positive automatic lubrication, reliable regulation and freedom from the necessity for close supervision.

* * *

E. F. Houghton & Co., Philadelphia, has offered the press a 12-page booklet devoted to belt dressing facts. The proper care of belts is explained in chapters headed: Belt Lubricant Essential; Liquid Lubricant is Best; Avoid Sticky Dressings; Slack Belts Undesirable; Loose Belts Waste Power; What a Dressing Should Do; Specially Adapted for the Purpose; Houghton Experience; Packages; and Directions.

* * *

Bethlehem Steel Co., Bethlehem, Pa., is now operating all units of its new pipe mills at the Maryland plant, Sparrows Point, Md. These comprise two butt mills, for the manufacture of butt-welded pipe, from ⅛ to 3 inches in diameter; two lap mills, equipped to manufacture all sizes of lap-welded pipe from 2 to 16 inches in diameter; a galvanizing department, and all auxiliary equipment, also warehouse.



Foster Wheeler Refinery Equipment

Heat Exchangers

The three stage Wheeler heat exchanger illustrated herewith forms one of the pieces of apparatus built in Foster Wheeler shops for a complete refinery unit now nearing completion. The picture was taken on the assembly floor where all heavy apparatus is shop assembled and inspected to insure perfect installation at the plant of the purchaser. The two upper heat exchangers are symmetrical and interchangeable. They are vapor heat exchangers operating in series, naphtha vapors entering at the top and flow down past the tubular cooling surface. 71,500 lbs. per hour of 42 Be. gravity Pennsylvania crude is passed through the tubes. Its temperature is raised from 30 to 250 deg. F.

The lower heat exchanger is used to cool and condense those vapors which pass through the two upper exchangers and to cool the condensate as desired. The cooling medium in the lower heat exchanger is water.

Long experience in oil refinery development has taught that large entrance and exit areas for the naphtha vapors are essential for best results and in this case the design is such that the vapors are uniformly distributed over the heating surface without the necessity of baffles or recirculating. Localization of corrosion and erosion is virtually eliminated.

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Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

Refineries Building New Equipment

THE attention of those who believe the refining industry is standing still in construction, is respectfully invited to these facts. The Pure Oil Co. has just added a mechanical engineer and three draftsmen to its refinery construction department.

The engineering department is starting to design a new lubricating oil plant for the Marcus Hook refinery, which will be modern and will embody several new ideas.

The Sun Oil Co. has recently finished a very extensive construction job at its refinery in Toledo, O., or perhaps the job isn't quite finished yet.

The Vacuum Oil Co. is doing a lot of work at its refinery at Olean, N. Y., in the way of new construction. These are just a few of the jobs that are going on in refineries.

A series of articles now running in NATIONAL PETROLEUM NEWS shows that the Pennsylvania refiners too are spending money for new equipment where necessary to increase their efficiency. Having improved their performance so much with the equipment they had, thanks to H. S. Bell and H. A. Ross, they are now looking for still greater efficiency and economy and in many cases this will lead to the installation of new equipment.

Refinery Engineer Returns from Europe

MR. WALTON, associated with H. E. Widdell and salesmanager of the oil refinery division of Arthur G. McKee & Co., Cleveland, has just returned home after a trip to continental Europe. Mr. Walton was away about six weeks, his errand being company business.

A New German Cracking Process

A NEW cracking process is being advertised in full page space in German petroleum trade papers as "the most economical process of the present day." It is the invention of a Dr. Bluemner, said to be protected by German and world patents. A bath of molten lead is the source of heat for the cracking operation. The process is said to be continuous and capable of using high asphalt fuel oil, brown coal tar or shale oil as charging stock.

Some work has been done in this country on cracking processes in which melted lead was used but so far as I know none of them ever reached commercial success. The following is quoted from an article describing the process:

"The process consists essentially in pumping the crude oil or tar under a pressure of 35 to 40 atmospheres into an autoclave which is filled with liquid lead. Separating material, the well known Raschig rings, are submerged in the melted lead. The oil is sprayed in on the surface of the lead without touching the walls.

"On account of this improvement of the cracking process it is possible not only to reach the cracking temperature (about 450° C.) in the shortest time but what is more important, every oil molecule will be exposed to the same temperature and pressure conditions so that no overheating occurs and no appreciable coke formation.

"It stands to reason that this would be the case inasmuch as melted lead is one of the best heat conductors. The process when once started can go ahead and it is not necessary, as is customary with other cracking processes, to shut down every couple of days for cleaning.

"A further great advantage of the Bluemner process lies in the fact that the autoclave to give an equal yield requires a much smaller heating surface than the tube system of other processes."

Keeping Track of Refinery Operations

JUST a few years ago, it is pointed out by O. W. Johnson in the Pure Oil News, no records whatever were kept of the pumpings and transfers of oils in many refineries. The result was that spills of considerable amounts could be hidden and frequently were. When a shortage developed at the end of the month there was a furor and nobody knew who to blame.

Mr. Johnson, who is employed at the Pure Oil Co.'s Heath, O., refinery, discusses the yield system in use in the Pure Oil refineries which keeps a very accurate record of what becomes of the oil from the time it enters the refinery until it goes out and shows where it goes. Concerning the system he says:

"Whoever makes up the monthly yield statement should be in close touch with all of the yield work daily. It is quite often the practice that the yield statement is made up at the end of the month by someone who is not in daily touch with the details, generally because he is the party responsible. This cannot work out to the best advantage for the simple reason that a great many things occur daily that should be taken into account in the monthly figures and which details are practically lost to anyone who is not in constant touch with the work."

Keeping of accurate yield statements and adoption of cost finding methods are two steps in the general process of tightening up refinery operations which are forced upon the industry by the narrowing margins it is up against.

More Cracking Plants Being Installed

JOSEPH C. WINSLOW of the Graver Corp. writes that three Jenkins cracking units are now under construction. One at the Tri-State Refining Co., Kenova, W. Va., was mentioned on this page some time ago. The other two are in the plant of the Western Oil Corp., Los Angeles, and in that of the Motor Fuel Products Co., at Laredo, Tex. Each of these is a 1500-barrel-a-day unit, Mr. Winslow says. One Jenkins plant is now operating on California fuel oil and those under construction are expected to use residuum as charging stock.

Refinery - Tank Wagon Markets

National Petroleum News

Export Interest in U. S. Motor Holds Up And Domestic Buying is Good

Staff Special
TULSA, May 12

PURCHASE of approximately 2,750,000 gallons of U. S. Motor in North Texas and Arkansas for export and coastwise movement, and unusually good domestic demand, kept the Mid-Continent gasoline market active throughout the second week of May.

Prices of the lower gravity gasolines moved up 0.125 to 0.25-cent a gallon in all areas. Higher gravity goods were steady in demand with little, if any, change in prices. Exporters continued to inquire for higher grade goods in all fields, with small success.

Natural gasoline prices did an "about face" under the stimulus of active buying of all grades.

Kerosenes were steady in price, with demand reported about on a par with the first week of May.

Gas oils and distillates were generally unchanged.

Fuel oils were lower in price with demand slower. Oklahoma refiners reduced prices slightly to meet competition from other areas selling on a Group 3 freight basis.

Gasolines

Heavy purchases of U. S. Motor gasoline for export and coastwise movement came late in the week in north Texas and Arkansas. Approximately 1,500,000 gallons of U. S. Motor were bought in north Texas at prices ranging from 7.25 to 7.375 cents a gallon. One export company was reported seeking all it could buy at these prices. The bulk of the purchases were made at the lower figure.

At the same time approximately, 1,250,000 gallons of U. S. Motor were bought in Arkansas at 7.50 cents f.o.b. refinery. Buyers were obtaining as much goods as possible in the districts which had more advantageous freight rates than Oklahoma. Shreveport refiners said they also had inquiries for U. S. Motor, but no sales had been reported to date.

The buying in north Texas has almost cleaned that field of the U. S. Motor grade according to reports. Prices have moved up 0.125 to 0.25 cents. Higher gravity gasolines for export meanwhile were comparatively quiet, primarily because exporters were not offering more than 7.625 to 7.75 cents a gallon, as compared with the 7.25 cents paid for U. S. Motor. Refiners say they can better afford to make the U. S. Motor at 7.25 cents than the higher gravity goods at 7.75 cents a gallon.

While the exporters were comparatively inactive in Oklahoma, domestic business most of the week was exceptionally good for this season of the year. Virtually every refiner in the field was quoting 7.125 cents and up to 7.50 cents for 58-60 U. S. Motor, as compared with 7 to 7.25 cents May 5.

Several refiners in Oklahoma are still working on export orders booked late in April for May delivery. One or two others have been buying a little gasoline from other refiners to fill out their requirements.

Kansas refiners for the most part say their business has been exceptionally good. Prices of all grades have moved up slightly in the course of the week. One or two in that state said they are oversold at present.

The Louisiana and Arkansas refiners also have been enjoying a good business in their normal marketing territory. Two Arkansas refiners said they were now virtually out of the market. With the heavy buying of U. S. Motor in Texas it is believed what little competition the Texas refiners have given them in the southeast will be eliminated for the next few weeks.

Natural Gasolines

Heavy buying throughout the week caused natural gasolines to snap out of the slump into which they drifted the last week of April. Prices moved up 0.125 to 0.50 cent a gallon. Grade AA became the most active when Phillips Petroleum Co. started buying this grade early in the week. The bulk of this company's purchases was doctor test goods. Approximately 300 cars were bought before the close of the week. Prices of grades A and AA moved from an average of 5.625 cents prevailing May 5, to 6.125 cents a gallon May 12. Purchases were made both for prompt and deferred shipment.

Grades B and BB also were in demand, but not as heavily as the higher grades. Prices did not react as strongly. Grade C was comparatively scarce and the increased demand was sufficient to cause prices to move up 0.25 cent a gallon.

Several manufacturers late in the week said they were nearly sold up for the next week or 10 days.

Kerosenes

One or two refiners in Oklahoma raised their quotations for 41-43 water white kerosene this week to 5.50 cents a gallon. The majority of refiners, however, continued to move their goods at 5.25 to 5.375 cents a gallon. Only an occasional car of untreated kerosene was reported moved at under 5.25 cents, even to resale buyers.

Demand was reported steady in some quarters, while other sellers said they had noticed a slight let-up in buying. One large refiner in Oklahoma who a week or 10 days ago was limiting his sales to regular customers indicated that he probably will have a little surplus soon.

Exporters inquired for a quantity of water white and prime white kerosenes in Oklahoma, Texas and Louisiana. Purchase of approximately 200 cars was reported during the week, but this purchase had not been confirmed prior to close of business May 12.

Texas refiners continued to enjoy a good demand for kerosene and comparatively little was reported available for spot shipment. The Arkansas and Louisiana refiners said they were completely sold up at present, while the Kansas refiners also were keeping their sales in pace with production. Prices in both the Kansas and the Louisiana-Arkansas districts moved up slightly during the week.

Gas Oil and Stove Distillates

Little change was noted in the

Refinery Markets on LightOils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices May 14	Prices May 7	Prices Apr. 30
52-54 Naphtha	8.75 – 9.625	8.50 – 9.625	8.50 – 9.50
54-56 Naphtha	9.00 – 9.75	8.75 – 9.75	8.75 – 9.625
58-60 U.S. Motor 437 e.p.	9.75 –10.25	9.50 –10.00	9.00 – 9.50
60-62 400-410 e.p. gasoline	10.25 –11.00	10.00 –10.25	9.75 –10.00
64-66 390 e.p. gasoline	10.50 –11.50	10.25 –11.00	10.00 –10.50
68-70 Str.-run gas. 350-360 e.p.	11.50 –12.50	11.50 –12.00	11.00 –11.50
OKLAHOMA			
48-50 450 e.p. naphtha	†7.00	†6.75	†6.50 – 6.75
50-52 450 e.p. naphtha	†7.00	†6.75	†6.50 – 6.75
56-58 450 e.p. gasoline	6.875– 7.00	6.625– 6.75	6.50
58-60 450 e.p. gasoline	7.00	6.75 – 6.875	6.625
64-66 390 e.p. gasoline	7.50 – 7.265	7.25 – 7.375	7.25 – 7.375
68-70 350-360 e.p. gasoline	7.75 – 7.875	7.50	7.50
OKLAHOMA (Weighted Average Prices)			
58-60 U.S. Motor, 437 e.p.	7.3357	7.0830	6.9136
60-62 437 e.p. gasoline	7.4167	7.2386	6.9455
60-62 400 e.p. gasoline	7.4583	7.3056	7.0882
64-66 375 e.p. gasoline	7.6250	7.4375	7.2188

Above are weighted average prices, current week's prices being effective on Saturday, instead of Monday, the last day on which weighted averages are available for publication in this table. Weighted average prices for the current Monday are published on page 37 of this issue. The two previous week's prices shown are corrected to show Monday's prices, effective on the dates shown at the top of the columns.

KANSAS* (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	7.25 – 7.50	7.125– 7.25	7.125
60-62 400 e.p. gasoline	7.625– 7.75	7.375– 7.50	7.375
64-66 375 e.p. gasoline	7.75 – 7.875	7.75	7.75
NORTH TEXAS			
48-52 450 e.p. naphtha	†6.875	†6.75	†6.50
56-58 450 e.p. gasoline	†6.75 – 6.875	†6.625	†6.50 – 6.625
58-60 450 e.p. gasoline	†6.875– 7.00	†6.625– 6.75	†6.50 – 6.625
58-60 U.S. Motor 437 e.p.	7.375– 7.50	**7.125– 7.25	**7.00 – 7.125
60-62 400 e.p. gasoline	7.50	7.375	7.25
64-66 390 e.p. gasoline	7.50 – 7.625	7.50	7.25 – 7.375
64-66 375 e.p. gasoline	7.625– 7.75	7.625	7.50 – 7.625
68-70 350-360 e.p. gasoline	7.75	7.625– 7.75	7.625
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	7.50 – 7.625	7.50	7.50
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline	6.875	6.875	6.75
58-60 450 e.p. gasoline	7.25	7.25	7.00
58-60 U.S. Motor 437 e.p.	7.625– 7.75	7.50 – 7.625	7.50
CALIFORNIA			
*54-58 U.S. Motor 437 e.p.	9.00 –12.50	8.50 –12.50	9.00 –12.50
*58-60 U.S. Motor 437 e.p.	10.00 –13.00	9.00 –13.00	10.00 –13.00
*42-45 Eng. dis. 445-480 e.p.	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00

*3c tax to be added if used in state.

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Since Oct. 1, 1927 naturals must pass corrosion test.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	†6.00 – 6.50	†5.50 – 5.875	†6.00 – 6.25
Grade A, 72-79.9, 90% Recovery	†6.00 – 6.50	†5.50 – 5.875	†6.00 – 6.25
Grade BB, 84-92, 85% Recovery	†5.25 – 5.625	†5.125– 5.25	†5.25 – 5.50
Grade B, 76-83.9, 85% Recovery	†5.25 – 5.625	†5.125– 5.25	†5.25 – 5.50
Grade C, 80-90, 78% Recovery	†5.25 – 5.50	†5.00	†5.00 – 5.25
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	†6.125– 6.50	†5.50 – 5.75	†6.125– 6.25
Grade A, 72-79.9, 90% Recovery	†6.125– 6.50	†5.50 – 5.75	†6.125– 6.25
Grade BB, 84-92, 85% Recovery	†5.375– 5.625	†5.25	†5.375– 5.50
Grade B, 76-83.9, 85% Recovery	†5.375– 5.625	†5.25	†5.375– 5.50
Grade C, 80-90 78% Recovery	†5.25 – 5.50	†5.00	†5.125– 5.25
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†6.50 – 6.75	†6.00	†6.25 – 6.50
Grade BB	†5.75 – 6.00	†5.625– 5.75	†5.75 – 5.875
Grade C	†5.50 – 5.75	†5.50	†5.50 – 5.625
CALIFORNIA			
75-85, 375-390 e.p. blend	8.50 – 9.00	8.50 – 9.00	8.00 – 9.00

MOTOR FUEL BLENDS

PENNSYLVANIA			
68-70 Blend 437 e.p.	Prices	.....	.....
64-66 Blend 437 e.p.	temporarily	.....	.....
60-62 Blend 437 e.p.	discontinued	.....	.....
OKLAHOMA			
64-66 Blend 437 e.p.	†7.00 – 7.25	†6.75	†6.50 – 6.625

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	6.75 – 7.125	6.625– 7.00	6.50 – 7.00
46 w.w. kerosene	7.25 – 7.75	7.00 – 7.50	7.00 – 7.50
47 w.w. kerosene	7.50 – 8.00	7.25 – 8.00	7.25 – 7.75
300 mineral seal	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
OKLAHOMA			
41-43 w.w. kerosene	5.25 – 5.375	5.25 – 5.375	5.00 – 5.25
42-44 w.w. kerosene	5.75	5.75	5.50
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	5.50 – 5.75	5.375– 5.50	5.375
42-44 w.w. kerosene	6.00	5.75 – 6.00	5.625 – 5.75
NORTH TEXAS			
40-42 w.w. kerosene	†4.875	†4.75 – 4.875	†4.75
41-43 w.w. kerosene	†5.25	†5.125– 5.25	†5.00
NORTH LOUISIANA (N. La. Ark. and Miss. destination)			
41-43 w.w. kerosene	5.75	5.50	5.25 – 5.50
ARKANSAS (Arkansas destination only)			
42-44 kerosene	5.75 – 6.00	5.75	5.50
CALIFORNIA			
38-40 w.w. kerosene	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50

NEUTRAL OIL

PENNSYLVANIA Vis.		(Viscosity at 70°F.)	
200 No. 3 Assoc. Filt.	33.50 –35.00	33.50 –34.25	33.50 –34.00
180 No. 3 Assoc. Filt.	31.50 –33.00	31.50 –32.50	31.50 –32.00
150 No. 3 Assoc. Filt.	27.50 –29.00	27.25 –28.00	27.00 –28.00
	(Non Viscous)		
34 Grav. 330-340 Flash	7.75 – 9.00	7.75 – 8.25	7.50 – 8.00
36 Min. Neut. 300-305 Flash	6.50 – 8.50	6.50 – 8.00	6.50 – 7.75
OKLAHOMA			
Vis. Color	(Viscosity at 100°F.)		
100—No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150—No. 3	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
150—No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180—No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200—No. 3	9.625–11.00	9.625–11.00	9.625–11.00
200—No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200—No. 5	9.00 –10.50	9.00 –10.50	9.00 –10.50
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.50 –14.00	13.50 –14.00	13.50 –14.00
240—No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280—No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280—No. 4	15.25	15.25	15.25
280—No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300—No. 5-6	17.00	17.00	17.00
GULF COASTAL			
Vis. Color	(Viscosity at 100°F., pour test 0)		
100—No. 2 Unfilt. Pale	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
200—No. 3 Unfilt. Pale	9.50 –10.25	9.50 –10.25	9.50 –10.25
300—No. 3 Unfilt. Pale	10.50 –11.25	10.50 –11.25	10.50 –11.25
500—No. 3½ Unfilt. Pale	12.50 –13.25	12.50 –13.25	12.50 –13.25
750—No. 4 Unfilt. Pale	14.50 –15.50	14.50 –15.50	14.50 –15.50
200—No. 5½ Red Oil	7.50 – 8.25	7.50 – 8.25	7.50 – 8.25
300—No. 5½ Red Oil	8.75 – 9.25	8.75 – 9.25	8.75 – 9.25
500—No. 6 Red Oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750—No. 6 Red Oil	12.75 –13.50	12.75 –13.50	12.75 –13.50
CALIFORNIA			
Vis. Color	(Viscosity at 100°F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50 –12.00	11.50 –12.00	11.50 –12.00
300—No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
450—No. 3-3½	15.50 –16.00	15.50 –16.00	15.50 –16.00
550—No. 3-3½	16.50 –17.00	16.50 –17.00	16.50 –17.00
600—No. 3-3½	17.00 –17.50	17.00 –17.50	17.00 –17.50
200—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
300—No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
400—No. 5	14.00 –14.50	14.00 –14.50	14.00 –14.50
500—No. 5	15.00 –15.50	15.00 –15.50	15.00 –15.50
600—No. 5	16.00 –16.50	16.00 –16.50	16.00 –16.50
700—No. 7	18.00 –18.50	18.00 –18.50	18.00 –18.50

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	21.50 –24.00	22.00 –24.00	21.00 –24.00
600 E St. 140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	8.50 –10.00	8.50 –10.00	8.50 –10.00
600 St. Ref. Dark Green	6.00 – 8.00	6.50 – 8.00	6.50 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	9.75 –11.50	9.75 –11.50	9.50 –11.00
650 Steam Refined	11.75 –15.00	11.00 –13.00	11.00 –13.00
600 Flash	16.00 –20.00	14.00 –18.00	14.00 –17.00
625 Flash	25.00 –29.00	24.00 –28.00	24.00 –28.00
600 Warren E	16.00 –17.50	16.00 –17.00	15.50 –17.00
600 Oil City E	16.00 –17.00	15.50 –17.00	14.50 –16.50
600 D Filtered	23.00 –25.50	23.00 –24.00	22.00 –23.50
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	29.00 –31.00	29.00 –30.00	28.00 –29.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	27.00 –28.00	26.50 –28.00	25.50 –27.00

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher)

†PRICES NOMINAL ††ONLY ONE REFINER QUOTING *QUOTATIONS ONLY **REPRESENTS BOTH SALES AND QUOTATIONS

gas oil demand and price in Oklahoma. Some 32-36 gas oil moved at 2.50 cents, but the bulk of sales continued at 2.625 cents a gallon. Demand was reported slower in north Texas but prices were generally unchanged.

Buying of heating distillates continued to cause a draft on stocks, as refiners were steadily reducing production to prevent a slack carry over.

Fuel Oils

More competition from other areas, as well as among themselves, was encountered by Oklahoma refiners selling fuel oils. Prices in many quarters were lowered from 2.50 to 5 cents a barrel.

Refiners making 14-16 and 16-18 gravity fuels were quoting 70 cents and up at the close of business May 12. The 18-22 gravity fuel was being sold mostly at 72.5 to 75 cents a barrel. One Oklahoma refinery was moving some 24-26 fuel oil at 72.5 to 75 cents a barrel, but the majority having this grade were asking slightly higher prices. At least one Oklahoma refiner this week ceased making high gravity fuel and will not offer 26-28 and 28-30 zero cold test again until next fall.

Neutrals, Cylinders, Wax

No changes in the price lists of Oklahoma refiners making neutral oils. Demand reported fair in most quarters.

One company this week reduced the price of its 600 steam refined dark green cylinder stock 0.50 cent a gallon to 6 cents. Others continued to ask from 6.50 to 8 cents a gallon. Bright stock was reported moving slower in some quarters, while others said business was as good as could be expected. The prevailing quotations for 150-160 vis. 210 bright stock were 22 to 24 cents a gallon, with an occasional sale reported at slightly under the lower figure.

Wax continued to be scarce in Oklahoma. Refiners said almost without exception they were completely sold up for May and a few had orders on their books for June delivery. Refiners' ideas of price for 124-126 white crude scale wax were mostly 3.75 cents a pound, although they said they had none to sell at present.

Gulf Coastal Water Shipments, March Compared with February

(All Figures in Barrels of 42 Gallons)

Company — Port	Coastwise Refined February	Coastwise Refined March	Export Refined February	Export Refined March
Standard of Louisiana, Baton Rouge	610,681.00	907,154.00	853,407.00	513,481.00
The Texas Company, Port Arthur	1,328,467.00	1,444,055.00	472,705.00	403,316.00
Gulf Refining Co., Port Arthur	2,228,290.52	2,312,822.80	202,915.19	144,822.32
Magnolia Petroleum Co., Beaumont	1,041,198.52	1,036,912.85(a)	.....	.....
Sinclair Refining Co., Houston	330,670.03	419,631.40	13,185.00	39,264.31
Humble Oil & Refg. Co., Baytown	1,566,248.82	1,555,451.53	947,257.78	1,981,812.42
Marland Oil Company, Texas City	.....	.....(b)	.....	.....
Atlantic Oil Producing Co., Atreco	244,682.23	39,822.14	.....	.....
Deepwater Oil Refineries, Houston	.....	.....	.....	70,000.00
Pure Oil Company, Smiths Bluff	288,380.01	302,858.70	.....	.....
Crown Central Pet. Corp., Houston	20,000.00	24,257.00	.....	.....
Totals	7,658,618.13	8,042,965.42	2,499,469.97	3,152,696.05
	Coastwise Crude		**Export Crude**	
Standard of Louisiana, Baton Rouge	554,427.00	419,018.00	53,966.00	53,148.00
The Texas Company, Port Arthur	.....	.....	.....	.....
Gulf Refining Co., Port Arthur	.....	.....	.....	.....
Magnolia Petroleum Co., Beaumont	672,148.50	901,306.90(a)	.....	.....
Sinclair Refining Co., Houston	397,688.98	671,681.69	.....	.....
Humble Oil & Refg. Co.				
Texas City	785,055.00	1,367,551.00	.....	.....
Baytown	347,844.00	481,802.00	.....	.....
Ingleside	1,309,993.00	1,604,847.00	.....	.....
Neches	.....	118,884.00	.....	.....
Atlantic Oil Producing Co.				
Atreco	552,459.20	385,269.30	.....	.....
Beaumont	371,776.57	238,592.57	.....	.....
Smiths Bluff	.....	59,228.51	.....	.....
Pasadena	.....	.....	.....	.....
Swiftsure Petroleum Co., Texas City	241,551.92	162,988.00	.....	.....
Pure Oil Company, Smiths Bluff	337,851.56	482,898.92	.....	.....
Sun Oil Company, Sabine Pass	701,987.00	538,227.00	.....	.....
Crown Central Pet. Corp., Houston	.....	.....	.....	.....
Totals	6,272,782.72	7,432,294.89	53,966.00	53,148.00

(a)—Magnolia Petroleum Company makes no distinction in reports between coastwise and export shipments.

(b)—No report.

Exports from Tampico District

Company	February	March
Transcontinental Petroleum Co. (Standard of New Jersey)	287,808	203,590
Pan American Eastern Oil Co.	1,252,274	1,706,889
Mexican Eagle Oil Co. (El Aguila)	1,018,210	690,187
Cia. Mexicana Holandesa "La Corona"	103,167	133,856
The Texas Co. of Mexico, S. A.	70,134	.....
Sinclair Mexican Companies	232,709	449,340
East Coast Oil Co. of Mexico, S. A. (Southern Pacific)	.....	.....
Pierce Oil Corporation	107,627	54,590
Mexican Atlas Oil Co.	.....	.....
La Espuela Oil Co.	.....	.....
Mexican Oil Products Co.	.....	.....
Panuco Boston Oil Co.	.....	51,179
Empire Gas & Fuel Co.	190,100	154,492
Cia. Mexicana Minerva, S. A.	.....	.....
Penn Mex Fuel Co.	150,030	133,908
New England Fuel Oil Co.	.....	.....
Moctezuma Terminal	.....	.....
Mexican Gulf Oil Co.	63,065	115,621
Totals	3,475,124	3,693,652

Cigar Lighters Fueled At Oil Stations

KALAMAZOO, Mich., May 12.—The L. V. White Co., oil jobber of Kalamazoo, recently began to dispense fuel for cigaret lighters at service stations. Special equipment has been installed to handle the product and a series of newspaper advertisements carried to acquaint the public with the service.

The equipment consists of a small tank and pump, so small that it will slip into the pocket of man-sized coveralls, at every station. Where the demand is expected to be large two outfits are provided or possibly one for each station salesman.

The tiny tank is a tight, screw-top can. The pump is manipulated by squeezing a rubber bulb about an inch in diameter. Operated thus the pump forces a stream of naphtha about the size of a pin out of the can. The stream can be directed into an ordinary lighter without spilling a drop. A woman might hold her lighter with a white gloved hand while the filling process was going on and be perfectly safe from spatter.

"There is no good excuse for an oil man's lighter not working," L. V. White explained. "Oil men are supposed to carry everything the public wants in the way of a petroleum product, and to know something about it. We make no charge for filling a lighter. It is part of our service to our customers and friends. And it has been a profitable thing as something new to talk about in our advertising and to attract people into our stations."

Margin Cut Acceptable To Chicago Jobbers

CHICAGO, May 11.—Cutting 1 cent off the gasoline margin of the Chicago retail dealers May 8 has been accepted generally as a fortunate development. Jobbers, the bulk of whose business was to resellers, needed the additional 1 cent to get their operations out of the "red" while it did not mean so much to the major companies, most of whose gallonage in the Chicago territory passes through their own stations.

The remarkable development since the curtailment of the dealers' margin was the attitude of the dealers themselves. There has been no expression of disapproval from them.

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices May 14	Prices May 7	Prices Apr. 30
*Per Pound, New York			
122-124 white crude scale	3.875– 4.25	3.875– 4.00	3.75 – 4.00
124-126 white crude scale	4.00 – 4.25	4.00	3.75 – 4.00
**OKLAHOMA			
*124-126 White Crude Scale	3.75	3.75	3.50 – 3.75
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	5.125– 5.50	5.00 – 5.25	5.00 – 5.25
30-34 fuel oil	5.00 – 5.125	5.00	4.75 – 5.00
28-32 fuel oil	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
OKLAHOMA			
38-40 straw distillate	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
36-38 straw distillate	3.00	3.00	3.00
32-36 gas oil, straw	†2.625– 2.75	†2.625– 2.75	†2.625– 2.75
32-36 dark gas oil	2.625	2.625	2.625
28-30 fuel oil (in bbls.)	$0.90 – 0.975	$0.90 – 0.975	$0.90 – 0.975
26-28 fuel oil (in bbls.)	$0.85 – 0.90	$0.875– 0.90	$0.875– 0.90
24-26 fuel oil (in bbls.)	**$0.75– 0.80	**$0.80– 0.85	**$0.80– 0.85
22-26 fuel oil (in bbls.)	**$0.75– 0.775	**$0.775–0.80	**$0.775–0.80
18-22 fuel oil (in bbls.)	**$0.725	**$0.725– 0.75	**$0.75– 0.775
16-18 fuel oil (in bbls.)	**$0.70– 0.725	**$0.725–0.75	**$0.75
14-16 fuel oil (in bbls.)	**$0.70 –0.725	**$0.725–0.75	**$0.75

Note: Zero cold test low flash gas oils sell for ¼ cent more per gallon. Zero cold test fuel oils sell for 5 to 10 cents more per bbl.

KANSAS* (F. O. B. refinery Kansas destination.)			
38-40 straw distillate	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
36-38 straw distillate	3.00	3.00	3.00
32-36 gas oil	2.875	2.875	2.875
24-26 fuel oil	*$0.80	*$0.90 – 1.00	$0.90 – 1.00
18-22 fuel oil	*$0.90 – 0.95	*$0.80 – 0.85	$0.80 – 0.85
NORTH TEXAS			
38-40 straw distillate	3.00	3.00	3.00
32-36 gas oil, cracked	2.50	2.50	2.50
32-36 gas oil, uncracked	2.50	2.50	2.50
24-26 fuel oil (in bbls.)	$0.725– 0.775	$0.725– 0.775	$0.725– 0.775

GULF COASTAL	Prices May 14	Prices May 7	Prices Apr. 30
Fuel (in bbls.)	$1.40 –$1.50	$1.40 –$1.50	$1.40 –$1.50
Gas oil	4.375– 4.50	4.375– 4.50	4.375– 4.50
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	2.625– 2.75	2.625– 2.75	2.625– 2.75
32-36 gas oil, straw	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
16-20 fuel oil (in bbls.)	$0.85	$0.85	$0.85
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
32-36 gas oil	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
28-32 gas oil	2.75	2.75	2.75
Road Oil	$1.15	$1.15	$1.15
CALIFORNIA* (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)	$0.70 –$0.85	$0.70 –$0.75	$0.70 –$0.80
14-18 Bunker oil (in bbls.)	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
30-34 gas oil (in bbls.)	$0.95 –$1.10	$0.95 –$1.10	$1.05 –$1.10
27 Plus Diesel oil (in bbls.)	$0.90 –$1.00	$0.90 –$1.00	$0.90 –$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f.o.b. refinery. In tank cars ⅝c to ¾c per pound less.)			
Snow White	8.00 – 8.125	8.00 – 8.125	8.00 – 8.125
Lily White	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
Cream White	6.00	6.00	6.00
Blonde	‡	‡	...‡
Light Amber	3.00 – 3.25	3.25	3.25
Amber	3.00	3.00	3.00
Red	2.75	2.75	2.75
Green No. 5 color	‡	‡	...‡

‡No refiner quoting.

**PETROLEUM COKE

OKLAHOMA

(Per ton in car lots)

Lump	$4.50 –$5.00	$4.50 – 5.00	$4.50 –$5.00
Still run	$2.75 –$3.00	$2.75 – 3.00	$2.75 –$3.00
Breeze	$1.75 –$2.00	$1.75 – 2.00	$1.75 –$2.00

†PRICES NOMINAL ††ONLY ONE REFINER QUOTING *QUOTATIONS ONLY **REPRESENTS BOTH SALES AND QUOTATIONS

California Gasoline Prices Rise; Station Differentials Narrow

Staff Special

LOS ANGELES, May 12

HIGHER prices for gasoline moving in tank cars from California refining centers was the feature of the west coast petroleum market this week.

Due to the scarcity of gasoline at the smaller Independent refineries, it has been impossible to get gasoline at less than 9 cents and this low price applied only to shipments to highly competitive points outside the state. Practically no gasoline has been sold at less than 10.50 cents to points within the state, and some gasoline is moving to nearby points at 11.00 to 12.50 cents, without tax.

The bids submitted to cover Navy requirements during the next fiscal year bolstered the tank wagon market. The Navy bids covered 2,081,000 gallons to be used on the Pacific coast. Seven companies bid. Total of 961,500 gallons will be required at San Pedro. Pan American Petroleum Co. bid 8.75 cents on 900,000 gallons at this point, with Union Oil Co. bidding 9.50 cents. Standard Oil Co. was the highest bidder at 12.50 cents, for a part of this business.

Union bid low at 10 cents on 1,065,000 gallons for delivery at San Diego. Standard bid 14 cents on most of the San Diego requirements.

The gasoline export business was inactive. It was said practically all companies would demand at least 8 cents in tanker loads, although it is possible that a firm bid might secure one or two cargoes at 7.50 to 7.75 cents for U. S. Motor.

No new contracts for fuel oil were reported. Major refiners look upon the market range as being from 75 cents to $1. Fuel is moving in tank cars at 70 cents to 85 cents, with no distress fuel on the market.

Kerosene sellers are asking 5.50 cents and up for shipments to competitive territories. This product is $1.45 in cases. Bulk kerosene can

(*Continued on Page* 120)

Correction

These are correct prices for the following products as of May 7, which were published in error in the refinery market table of the May 9 issue of NATIONAL PETROLEUM NEWS:

Pennsylvania 300 mineral seal	7.50-7.75
Oklahoma 41-43 w.w. kerosene	5.25-5.375
Oklahoma 64-66, 375 e.p. gasoline	7.4375
N. Texas 41-43 w.w. kerosene	5.125-5.25

Week's Price Changes Tank Wagon Markets

Gasoline Changes

Atlantic Refining—S.s. prices only of gasoline reduced 1 cent, Pennsylvania and Delaware, except Erie, to 21 cents generally, **May 10.**

Standard of Kentucky—T.w. and s.s. prices gasoline advanced 1 cent, Georgia, Alabama, Mississippi and Florida, except Savannah s.s. unchanged, **May 7.** Kentucky prices unchanged.

Standard of Louisiana—T.w. and s.s. prices gasoline advanced 1 cent, Tennessee, April 24, and eastern Tennessee, including Chattanooga and Knoxville advanced ½-cent and 1 cent respectively, **May 7.** Corrected prices are published in the accompanying tank wagon table.

Standard of Nebraska—T.w. and s.s. prices gasoline advanced 1 cent, McCook, to 17.75 cents and 19.75 cents respectively, including 2 cent state tax, **April 23.**

Continental Oil—S.s. prices only of gasoline advanced 1 cent, Colorado, **May 10.**

Magnolia Petroleum—S.s. price only of gasoline advanced 1 cent, Oklahoma City, to 18 cents, **May 1.**

Kerosene Changes

Standard of Nebraska—T.w. price kerosene advanced 2¼ cents, McCook, to 13.75 cents, **April 23.**

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for 1927, 1926, 1925, 1924 arranged for quick reference)

These Prices in Effect May 14, 1928, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Atlantic City, N. J.	16	2	18	20	14
Newark, N. J.	16	2	18	20	14
Annapolis, Md.	16	4	20	23	14
Baltimore, Md.	16	4	20	23	12
Cumberland, Md.	16	4	20	23	14
Washington, D. C.	16	2	18	21	14
Danville, Va.	16	5	21	*	14
Norfolk, Va.	16	5	21	24	14
Richmond, Va.	16	5	21	24	14
Roanoke, Va.	16	5	21	24	14
Petersburg, Va.	16	5	21	24	14
Charleston, W. Va.	16	4	20	23	14
Keyser, W. Va.	16	4	20	23	14
Parkersburg, W. Va.	16	4	20	23	14
Wheeling, W. Va.	16	4	20	23	14
Charlotte, N. C.	16	4	20	23	14
Hickory, N. C.	16	4	20	23	14
Mt. Airy, N. C.	16	4	20	23	14
Salisbury, N. C.	16	4	20	23	14
Charleston, S. C.	15	5	20	23	14
Columbia, S. C.	15	5	20	23	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	17	0	17	*19	15
Albany, N. Y.	16	0	16	19	15
Buffalo, N. Y.	16	0	16	19	14
Rochester, N. Y.	16	0	16	19	12
Syracuse, N. Y.	16	0	16	19	15
Boston, Mass.	17	0	17	19	15
Augusta, Me.	17	4	21	23	15
Manchester, N. H.	17	4	21	23	15
Burlington, Vt.	16	3	19	22	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	*21	13
Philadelphia, Pa.	16	*	16	*21	13
Allentown, Pa.	16	*	16	*21	13
Erie, Pa.	12	*	12	*18	13
Scranton, Pa.	16	*	16	*21	13
Altoona, Pa.	16	*	16	*21	13
Dover, Del.	16	3	19	21	14
Wilmington, Del.	16	3	19	21	14
Providence, R. I.	19	2	21	21	15
Boston, Mass.	19	0	19	19	15
Springfield, Mass.	19	0	19	19	15
Worcester, Mass.	19	0	19	19	15
Hartford, Conn.	19	2	21	21	14
New Haven, Conn.	19	2	21	21	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	15	5	20	22	15.5
Louisville, Ky.	14	5	19	21	15
Covington, Ky.	15	5	20	22	15.5
Clarksdale, Miss.	15	4	19	21	14.5
Gulfport, Miss.	††16.5	4	††20.5	22.5	14
Jackson, Miss.	15	4	19	21	14.5
Natchez, Miss.	14.5	4	18.5	20.5	14
Vicksburg, Miss.	14.5	4	18.5	20.5	14
Birmingham, Ala.	17	4	21	23	16
Mobile, Ala.	17	4	21	23	15
Montgomery, Ala.*	18	4	22	24	16.5
Atlanta, Ga.	17	4	21	23	†16.5
Augusta, Ga.	17	4	21	23	†16.5
Macon, Ga.	17	4	21	23	†16.5
Savannah, Ga.	15	4	19	20	14.5
Jacksonville, Fla.	15	5	20	22	13.5
Miami, Fla.	17	5	22	24	15.5
Tampa, Fla.	15	5	20	22	13.5
Pensacola, Fla.	**16	5	**21	23	13.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. Mobile gasoline prices include 1c city tax.
†Georgia kerosene prices include 1c state tax.
**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.
††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Chicago, Ill.	14	0	14	16	12
Decatur, Ill.	14.2	0	14.2	16.2	12.1
E. St. Louis, Ill.	13.1	0	13.1	15.35	11.2
Joliet, Ill.	14.4	0	14.4	16.4	12.3
Peoria, Ill.	14.2	0	14.2	16.2	12.1
Quincy, Ill.	14.2	0	14.2	16.2	11.9
Indianapolis, Ind.	14.2	3	17.2	19.2	13.2
Evansville, Ind.	14	3	17	19	13
South Bend, Ind.	14.4	3	17.4	19.4	13.4
Detroit, Mich.	14.8	3	17.8	19.8	13.7
Grand Rapids, Mich.	14.7	3	17.7	19.7	13.6
Saginaw, Mich.	14.9	3	17.9	19.9	13.8
Green Bay, Wis.	14.6	2	16.6	18.6	12.4
Madison, Wis.	14.3	2	16.3	18.3	12.1
Milwaukee, Wis.	14.1	2	16.1	18.1	11.9
La Crosse, Wis.	15.2	2	17.2	19.2	13
Minneapolis, Minn.	14	2	16	18	12.9
Duluth, Minn.	15.5	2	17.5	19.5	12.9
Mankato, Minn.	12.1	2	14.1	16.1	12.7
Des Moines, Ia.	13.5	3	17.5	19.5	12.3
Davenport, Ia.	14.5	3	17.5	19.5	12.3
Sioux City, Ia.	14.1	3	17.1	19.1	11.9
Mason City, Ia.	14.5	3	17.5	19.5	12.3
St. Louis, Mo.	*13.6	2	15.6	17.9	11.3
Kansas City, Mo.	†14.9	2	16.9	18.9	10.6
St. Joseph, Mo.	†14.5	2	16.5	18.5	11.2
Fargo, N. D.	16.9	2	18.9	20.9	14.9
Grand Forks, N. D.	17.2	2	19.2	21.2	15.2
Minot, N. D.	16.9	2	18.9	20.9	14.9
Pierre, S. D.	15.5	4	19.5	21.5	13.9
Huron, S. D.	15.5	4	19.5	21.5	13.9
Wichita, Kans.	12.8	2	14.8	16.8	10.8
Bartlesville, Okla.	12.5	3	15.5	17.5	10.5

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline outside the city of Chicago is 1c for 50 gals. or more at one delivery; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

In Chicago, above discounts apply, except the 1c for 50 gal. dumps.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month, or 2400 gals. per year.

Discount on kerosene is 1c on 50 gal. dumps throughout territory.

*Includes city tax of ½c.
†Includes city tax of 1c.

CONTINENTAL OIL

Denver, Colo.	14	3	17	20	14.5
Pueblo, Colo.	14	3	17	20	14.5
Grand Junction, Colo.	17.5	3	20.5	23.5	18
Casper, Wyo.	14	3	17	19	13
Cheyenne, Wyo.	15	3	18	20	14.5
Butte, Mont.	19.5	3	22.5	22.5	19
Helena, Mont.	19.5	3	22.5	24.5	19
Salt Lake City, Utah	16.5	3½	20	22	17
Boise, Ida.	19.5	4	23.5	25.5	19
Twin Falls, Ida.	19.5	4	23.5	25.5	19
Albuquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA

Phoenix, Ariz.	12	4	16	20	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

S. O. LOUISIANA

Little Rock, Ark.	15	5	20	22	12
Alexandria, La.	14	2	16	18	†14
Baton Rouge, La.	13	2	15	17	†12.5
Lake Charles, La.	14.5	2	16.5	18.5	†14
New Orleans, La.	*14.5	2	*16.5	*18.5	†14
Shreveport, La.	14.5	2	16.5	18.5	†13
Lafayette, La.	14	2	16	18	†13.5
Bristol, Tenn.	17	3	20	22	14
Chattanooga, Tenn.	16.5	3	19.5	21.5	15
Knoxville, Tenn.	17	3	20	22	15
Nashville, Tenn.	16	3	19	21	15
Memphis, Tenn.	15	3	18	20	14

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax
†Kerosene price in Louisiana includes 1c state tax.

S. O. OHIO

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
All Ohio points	14	3	17	19	14

S. O. NEBRASKA

Omaha, Neb.	14.25	2	16.25	18.25	12.25
McCook	15.75	2	17.75	19.75	13.75
Norfolk	14.75	2	16.75	18.75	12.75
North Platte	15.75	2	17.75	18.5	13.50
Scottsbluff	15.25	2	17.25	19.25	13.00

MAGNOLIA PETROLEUM

Muskogee, Okla.	14	3	17	18	11
Oklahoma City	13	3	16	18	11
Tulsa, Okla.	12	3	15	17	11
Fort Smith, Ark.*	15	*3	18	20	12
Little Rock, Ark.	15	5	20	22	12
Texarkana, Ark.*	13.5	*3	16.5	20.5	12
Dallas, Tex.	11	3	14	18	11
Fort Worth, Tex.	12	3	15	18	11
Houston, Tex.	11	3	14	18	15
San Antonia, Tex.	12	3	15	18	10
El Paso, Tex.	14	3	17	20	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 3c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&.P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		19	

*Includes 2c state tax. †Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
ONTARIO					
Toronto	19.5	3	22.5	26	21
Ottawa	19.5	3	22.5	26	21
Cochrane	24.5	3	27.5	36	26
Ft. William	22.5	3	25.5	29	22.5
MANITOBA					
Winnipeg	21.5	3	24.5	28	21.5
SASKATCHEWAN					
Regina	25.5	3	28.5	33	25.5
ALBERTA					
Edmonton	26.5	3	29.5	33	26.5
Calgary	22.5	3	25.5	29	22.5
BRITISH COLUMBIA					
Vancouver	21	5	26	30	22
QUEBEC					
Montreal	20.5	5	25.5	29	21
Quebec City	22.5	5	27.5	33	23
Three Rivers	22.5	5	27.5	31	23
NEW BRUNSWICK					
St. John	22.5	3	25.5	30	22
Moncton	22.5	3	25.5	30	22
NOVA SCOTIA					
Halifax	22.5	5	27.5	32	22
Sydney	22.5	5	27.5	32	22
PRINCE EDWARD ISLAND					
Charlottetown	22.5	5	27.5	31	22

Note: In districts surrounding these points 1c additional is added to city price.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Colorado, 1/10c on both; Florida, 1,8c; Indiana, 2/25c; Kansas, 1/50c; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesota, 3/50c; Missouri, 1/50c; Nebraska, 3/50 to 1/2c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 4/25c; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c.

Kerosene inspection fees only: Iowa, 13/100c; Michigan, 1/5 to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Gasoline and Kerosene Prices Rise Further on East Coast

Staff Special
NEW YORK, May 12

FURTHER advances in prices of gasoline and kerosene developed late this week in Atlantic seaboard markets. Most major companies moved their prices upward but a few conservatives continued to quote their old prices.

Comparatively good motoring weather all week brought a fair increase in spot demand for gasoline from jobbers. Refiners reported exceptionally good contract movement.

U. S. Motor gasoline at New York harbor was steady at 9.75 cents most of the week. Friday and Saturday several large sellers reported they were advancing their quotations for spot shipment to 10 and 10.25 cents, new highs for the year. Goods, however, were still available at 9.75 cents May 12.

The increase in prices for California gasoline at New York harbor was more specific. From a flat price of 10 cents, all sellers handling this grade advanced their prices to 10.25 cents.

One seller at Philadelphia continued to quote 9.50 cents for both regular U. S. Motor and the California grade to the end of the week. Other sellers quoted 10.25 cents and 10 cents, respectively, for these two grades. This is an unusual situation —a differential of 0.75-cent in the price range of U. S. Motor and 0.5-cent of California goods. Sellers at both the high and the low of the prices ranges reported good movement, both on spot and contract orders.

As a forerunner of advances in other markets, gasoline at Baltimore was advanced 0.25-cent by two large sellers early in the week. This raised the price range at Baltimore 9.75 to 10 cents for U. S. Motor with a flat price of 10.25 cents for California gasoline.

Gasoline markets at other southern seaboard points also advanced. U. S. Motor was quoted at 9.75 to 10 cents at Norfolk and 9.50 to 10 cents at Charleston. At Savannah and Jacksonville quotations ranged 9.25 to 9.75 cents.

There was a slightly better demand for kerosene. Prices generally advanced 0.25-cent. Water white kerosene was quoted 7.50 cents flat at New York harbor. Goods were available at the same price at Philadelphia and Baltimore although several sellers in these two markets were asking 7.75 cents.

Foreign Gasoline Interest Lags; Higher Prices Asked

BULLETIN

(By Telegraph)

NEW YORK, May 14.—French buyer was in the market Monday for approximately 50,000 barrels of 64-66, 375 e. p. gasoline, prime and water white kerosenes for June 10-July 6 loading. The inquiry aroused considerable interest since it broke a three weeks' lull in buying. Same buyer was reported inquiring for another mixed cargo of approximately 75,000 barrels, details of which, however, were lacking. Suppliers' ideas of prices are about the same, although one or two indicated slightly higher.

* * *

Staff Special
NEW YORK, May 12

FOREIGN buyers showed little interest in the Gulf market this week. No inquiries for July and August gasoline requirements had entered the market up to close of business Saturday. It was believed by several of the trade that buyers were holding off expecting to better present quotations.

Early this week suppliers expressed higher ideas of the market on both gasoline and kerosene. Higher gasoline prices, several suppliers said, came as the result of advancing markets in the field.

Suppliers were generally in agreement on the higher asking prices. The fact that the last cargo of gasoline sold at 8.625 cents for U. S. Motor and 9.375 cents for 64-66, 375 end point was taken as an indication in some quarters that higher prices now quoted might be shaded. A buyer, however, seeking a large quantity of U. S. Motor gasoline for shipment to the United Kingdom was unable to purchase at 8.625 cents, the low of the previous week's price range.

Kerosene at the Gulf also felt higher buying prices in the Mid-Continent. There has been an active domestic demand in Oklahoma and north Texas and prices there have shown a steady upward tendency. Water white kerosene at the Gulf was quoted at 7.50 cents and prime white at 6.50 cents. It was doubtful, according to most of the trade, if these prices could be shaded particularly for full cargo lots.

The gas oil market was a little more settled. There was a fairly good demand from foreign buyers. The sale of one cargo of 26-28 translucent gas oil at 3.875 cents for late May or early June shipment to a German buyer was reported. Several other inquiries for fairly prompt and deferred shipment were said to be pending as the week ended.

Fuel oil prices were slightly lower, both for cargo lots and bunkers. Most suppliers were asking $0.90 a barrel for Grade C oil in cargoes, as against a range of $0.90 to $0.95 last week.

Bunkers were obtainable at $1 a barrel at New Orleans and $1.10 a barrel further west in the Gulf.

Quotations were made for heavy Panuco crude at $1.02 to $1.05 a barrel, f.o.b. Tampico. It was believed in some quarters that $1.00 might be done on firm offer.

Tanker Rates

NEW YORK, May 14.—Approximate tanker freight rates in the following trades are, to Continental ports, in shillings per ton of 2240 pounds, British Sterling; to American ports, cents per barrel:

	Crude &/or Fuel Oil	Refined
Calif. to U.K. or Continental ports*.....	29/-	30/-
Gulf to U.K. or Continental ports*.....	16/-	17/6
North Atlantic to U.K. or Continental ports*	13/6	14/6
Calif. to North Atlantic ports (not E. of N.Y.)	57c	80/85c
**Gulf to North Atlantic ports (not E. of N.Y.)	17½c	30/35c

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

**For Venezuela loading, 1c per bbl. additional. For Tampico loading, 4c per bbl. additional.

Venezuelan Heavy Oil Cheaper

NEW YORK, May 12.—Slightly lower prices for Venezuelan heavy crude oil were heard among the New York trade this week. No spot cargo sales were made known, but buyers seeking quotations reported offers at $0.90, f.o.b. deepwater, Lake Maracaibo region. This compares with quotations of $0.92 to $0.93 the previous two weeks. Last paid rate from Lake Maracaibo to north of Hatteras was 17 cents a barrel. The current asking market, however, is reported at 18 to 20 cents, and 2 cents a barrel more for shipments east of New York.

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926-1927)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, represent majority of quotations and sales.)

	May 14	May 7	Apr. 30
U.S. Motor gasoline, New York harbor	9.75 –10.00	9.75	9.75
U.S. Motor gasoline, Philadelphia	9.50 –10.25	9.50 –10.00	9.50 – 9.75
U.S. Motor gasoline, Boston district	10.50 –10.75	10.00 –10.50	*10.25 –10.50
U.S. Motor gasoline, Providence district	10.50 –10.75	10.00 –10.50	*10.00 –10.50
U.S. Motor gasoline, Baltimore	9.75 –10.00	9.75	9.75
U.S. Motor gasoline, Norfolk	9.75 –10.00	9.75	9.75
U.S. Motor gasoline, Charleston	9.50 –10.00	9.50	9.50
U.S. Motor gasoline, Savannah	9.25 – 9.75	9.00 – 9.25	9.00 – 9.25
U.S. Motor gasoline, Jacksonville	9.25 – 9.75	8.75 – 9.25	8.75 – 9.25
California U.S. Motor gasoline, New York Harbor	10.25	10.00	10.00
California U.S. Motor gasoline, Baltimore	10.25	10.00	10.00
California U.S. Motor gasoline, Philadelphia	9.50 –10.00	9.50 – 9.75	9.50 – 9.75
Water white kerosene, New York Harbor	7.50	7.00 – 7.50	7.00
Water white kerosene, Philadelphia	7.50 – 7.75	7.25 – 7.50	7.25
Water white kerosene, Baltimore	7.50 – 7.75	7.50	7.50
28-34 gas oil, New York harbor	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
28-34 gas oil, Boston district	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
36-40 furnace oil, New York harbor	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75
36-40 furnace oil, Boston district	5.75	5.50 – 5.75	5.50 – 5.75
Grade C bunker oil, New York harbor	$1.25	$1.25	$1.35
Grade C bunker oil, Boston district	$1.25	$1.35	$1.35
Diesel oil, New York harbor	$2.00	$2.00	$2.00

Note: Above prices do not include inspection tax levied in some states.

MEDICINAL OILS

Russian 885-890 s.g., 325-330 vis	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
Russian 870-875 s.g., 150-155 vis	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
Russian 860-865 s.g., 80-85 vis	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

***Nominal. †Only one refiner quoting.**

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	May 14	May 7	Apr. 30
U. S. Motor gasoline	25.40	25.40	25.40
43-45 150 w.w. kerosene	18.40	18.40	18.40
42-44, 110 s.w. kerosene	17.40	17.40	17.40
CYLINDER OILS			
Bright stock, dark	33.50 –34.50	33.50 –34.50	33.00 –34.00
600 D filtered	31.00	31.00	30.00 –31.00
600 Warren E filtered	23.50 –24.50	23.50 –24.50	23.50 –24.50
600 s.r. unfiltered	17.00 –17.50	17.00 –17.50	17.00
650 s.r. unfiltered	18.75 –19.50	18.75 –19.50	18.25 –19.50
600 flash s.r.	21.00 –21.50	21.00 –21.50	20.50 –21.50
630 flash, s.r.	32.00 –34.00	32.00 –34.00	32.00 –34.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.50 –20.00	19.50 –20.00	19.50 –20.00
250 vis. No. 6 color	18.50 –19.00	18.50 –19.00	18.50 –19.00
200 vis. No. 6 color	18.00 –18.50	18.00 –18.50	18.00 –18.50
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	24.00	24.00	24.00
180 vis. No. 3¼ color	20.00	20.00	20.00
100 vis. No. 2¼ color	15.75	15.75	15.75
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	35.00	35.00	35.00
500 vis. No. 6½ color	33.00	33.00	33.00
400 vis. No. 7¼ color	31.00	31.00	31.00
300 vis. No. 6 color	30.00	30.00	30.00
200 vis. No. 3¼ color	24.00	24.00	24.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)

WHITE CRUDE SCALE (In barrels)

	May 14	May 7	Apr. 30
122-124 A.m.p.	3.875– 4.00	4.00	3.75 – 4.00
124-126 A.m.p.	3.875– 4.00	4.00	3.75 – 4.00
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	4.50	4.50	*4.25
125-127 A.m.p.	4.50	4.50	*4.25
128-130 A.m.p.	4.625	4.625	4.25 – 4.50
130-132 A.m.p.	5.00	5.00	4.50 – 4.75
133-135 A.m.p.	5.75	5.75	5.50 – 5.75
135-137 A.m.p.	6.25 – 6.50	6.25 – 6.50	6.00 – 6.25
YELLOW CRUDE SCALE			
124-126 A.m.p.	3.75	3.75	3.375– 3.50

***Prices nominal.**

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary)

GASOLINE	May 14	May 7	Apr. 30
U.S. Motor	8.75	8.625– 8.75	*8.625
60-62, 400 e.p.	9.00	8.875– 9.00	8.875– 9.00
61-63, 390 e.p.	9.25	9.125– 9.25	9.125– 9.25
64-66, 375 e.p.	9.50	9.375– 9.50	*9.375
U. S. Motor, cases (cargoes)	$1.75	$1.75	$1.75
64-66, cases (cargoes)	$1.85	$1.85	$1.85

***Sales only.**

KEROSENE			
44 water white	7.50	7.25 – 7.50	7.25 – 7.50
41-43 prime white	6.50	6.25 – 6.50	6.25 – 6.50
Water white, cases (cargoes)	$1.65	$1.65	$1.65
Prime white, cases (cargoes)	$1.55	$1.55	$1.55
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.875– 4.00	3.875– 4.00	3.875– 4.00
*30-32 translucent gas oil	4.00	4.00	....
Grade C bunker oil	$1.00 –$1.10	$1.05 – 1.15	$1.05 – 1.15
Grade C bunker oil, cargoes	$0.90	$0.90	$0.90 – 0.95

***Less than ½ of 1% sulfur.**

MEXICAN CRUDE AND BUNKER OILS (F.O.B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$1.02 –$1.05	$1.05	$1.05
Grade C bunker oil, for bunkering purposes, taxes paid	$1.15	$1.15	$1.20

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F.; cold test 0) (Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	6.00	6.00	6.00
200 vis. No. 3 unfiltered pale	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
300 vis. No. 3 unfiltered pale	9.25	9.25	9.25
500 vis. No. 3½ unfiltered pale	11.50 –11.75	11.50 –11.75	11.75
750 vis. No. 4 unfiltered pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200 vis. No. 5-6 red oil	7.00 – 7.50	7.00 – 7.50	7.50
300 vis. No. 5-6 red oil	8.00 – 8.50	8.00 – 8.50	8.50
500 vis. No. 5-6 red oil	10.00	10.00	10.00
750 vis. No. 5-6 red oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
1200 vis. No. 5-6 red oil	13.50 –15.50	14.50 –15.50	14.50 –15.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	May 14	May 7	Apr. 30
Gasoline, U. S. Motor, 53-55 Gravity	7.50 – 8.00	7.50 – 7.75	7.50 – 7.75
Gasoline, U. S. Motor, blends and special cuts	9.00 – 9.50	8.00 – 9.00	8.00 – 9.00
Gas Oil, 30-34, per barrel	$1.10 –$1.20	$1.05 –$1.15	$1.05 –$1.10
Diesel Oil, 27 plus, per barrel	$0.95 –$1.10	$0.95 –$1.05	$0.95 –$1.05
Bunker oil, 14-18, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Fuel oil, 14-18, per barrel	$0.75 –$1.00	$0.75 –$1.00	$0.75 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
Cased Goods			
Gasoline, U. S. Motor	$1.70 –$1.80	$1.70 –$1.80	$1.70 –$1.80
Kerosene, 38-40 w.w., 125-150 flash	$1.40 –$1.45	$1.35 –$1.45	$1.35 –$1.45

Crude Oil Prices, as Posted by Major

(Crude prices for years 1924-1925-1926-1927 in

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$2.80
Bradford District Oil in National Transit Lines (Bradford District)	2.80
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	2.65
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	2.65
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	2.60
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	2.35
Keister Grade in National Transit Lines (Butler Co)	1.10
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.35
Corning Grade in Buckeye Pipe Lines (Ohio)	1.55
Corning, O. heavy grade	1.45
*Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.45
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

*Somerset oil run prior to Oct. 1922, takes price of 6 cents lower than above quotations.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines.....$1.50

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$1.57	Plymouth	$1.23
Lima	1.55	West Kentucky	1.33
Waterloo	1.20	*Canadian Petro.	1.95
Indiana	1.32	*Oil Springs	2.02
Princeton	1.50	*Posted by Imperial Oil Ltd.	
Illinois	1.50		

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective Feb. 21, 1928

28-28.9	$0.96	41-41.9	$1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76
40-40.9	1.40		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Effective Feb. 21, 1928

Below 25	$0.76	26-26.9	$0.86
25-25.9	0.81	27-27.9	0.91

Humble Prices (Cont'd)

28-28.9	$0.96	37-37.9	$1.31
29-29.9	1.01	38-38.9	1.34
30-30.9	1.06	39-39.9	1.37
31-31.9	1.11	40-40.9	1.40
32-32.9	1.16	41-41.9	1.43
33-33.9	1.19	42-42.9	1.46
34-34.9	1.22	43-43.9	1.49
35-35.9	1.25	44 and above	1.52
36-36.9	1.28		

Mirando, Tex.....$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Feb. 21, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades, unchanged from Feb. 16:

Below 30	$0.75
30-30.9	0.90
31-31.9	1.05
Glasscock and Howard Counties	$0.60
Chalkfield (Howard Co.)	$0.80
Iatan district	$0.93
Corsicana heavy	$1.00

Carter Oil Co.

(Oklahoma and Kansas)

Feb. 21, same schedule as Prairie plus these grades:

24-24.9	$0.76	26-26.9	$0.86
25-25.9	0.81	27-27.9	0.91

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective Feb. 21, 1928

Hutchinson and Carson Counties:

Below 31	$0.60	38-38.9	$0.88
31-31.9	0.65	39-39.9	0.91
32-32.9	0.70	40-40.9	0.94
33-33.9	0.73	41-41.9	0.97
34-34.9	0.76	42-42.9	1.00
35-35.9	0.79	43-43.9	1.03
36-36.9	0.82	44 and above	1.06
37-37.9	0.85		

Wheeler County:

Below 29	$0.60	37-37.9	$0.95
29-29.9	0.65	38-38.9	0.98
30-30.9	0.70	39-39.9	1.01
31-31.9	0.75	40-40.9	1.04
32-32.9	0.80	41-41.9	1.07
33-33.9	0.83	42-42.9	1.10
34-34.9	0.86	43-43.9	1.13
35-35.9	0.89	44 and above	1.16
36-36.9	0.92		

Gray County:

Below 27	$0.60	36-36.9	$1.02
27-27.9	0.65	37-37.9	1.05
28-28.9	0.70	38-38.9	1.08
29-29.9	0.75	39-39.9	1.11
30-30.9	0.80	40-40.9	1.14
31-31.9	0.85	41-41.9	1.17
32-32.9	0.90	42-42.9	1.20
33-33.9	0.93	43-43.9	1.23
34-34.9	0.96	44 and above	1.26
35-35.9	0.99		

WEST TEXAS

Humble Oil & Refining Co.

Effective Aug. 23, 1927

Crane, Upton, Crockett and Pecos Counties...$0.60

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto

Effective Feb. 21, 1928

Below 28	$0.91	40-40.9	$1.40
28-28.9	0.96	41-41.9	1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76

Cotton Valley, below 36, $0.75. Rest of Cotton Valley schedule, beginning with 36-36.9 at $1.28, same as Caddo, Homer, etc.

Smackover, below 24	$0.75
do 24 and above	.90
Bellevue	1.25
*Urania, La.	.75
†East El Dorado	1.00

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Smackover prices posted on Feb. 7 by S. O. La., Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia; on Feb. 6, by La. Oil Refg. Corp.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp.

Below 28	$0.85	30-30.9	$0.91
28-28.9	0.87	31-31.9	0.93
29-29.9	0.89	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14, 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

California Gasoline Rises

(*Continued from Page* 116)

still be purchased at 4.50 to 5 cents for export.

Uncracked gas oil is scarce with Los Angeles refiners buying most of this product offered to be used in cracking. A cargo of uncracked gas oil would bring between $1.10 and $1.20 a barrel if it could be secured. There is some of this product available for tank car shipments at 95 cents to $1.

The retail gasoline situation in southern California is gradually improving. As the 6-cent differential contracts expire, they are being renewed at 4 to 5 cents differential, thus making it impossible for Independent resellers to sell at 15 and 16 cents as they did during January and February. A few Independent refiners are making contracts at 5 cents under the service station price, with the major refiners sticking strictly to the 4-cent margin.

Shipment from Los Angeles

LOS ANGELES, May 11.—Fifteen tankers left Los Angeles harbor week ended April 28, for points outside of Pacific coast trade territory carrying total of 888,683 barrels of petroleum products, or a daily average of 126,955 barrels, compared with previous week's total of 1,600,927 barrels, or a daily average of 228,704 barrels.

Total movement included 89,072 barrels of crude, 386,767 barrels of fuel, 288,150 barrels of gasoline, 48,036 barrels of diesel and 76,658 barrels of gas oil. Pacific foreign trade absorbed 89,072 barrels of crude, 274,967 barrels of fuel, 35,366 barrels of gasoline and 41,505 barrels of diesel. Shipments to Atlantic domestic included 111,800 barrels of fuel, 252,784 barrels of gasoline and 76,658 barrels of gas oil. One shipment of 6,531 barrels of diesel went to Atlantic foreign.

More Lubes Shipped

HOUSTON, May 14.—A better tone exists in the Gulf Coastal lubricant market at unchanged prices. Shipments to jobbers show some increases, reflecting spring motoring conditions. Market is normal for this season.

* * *

HOUSTON, May 12.—North Shore Oil Co., Inc., distributors at Slidell, La., announce they have taken on the marketing of Sinclair products in their territory.

Erie City Iron Works, Erie, Pa., has established a direct sales office in Cleveland, O., at 1105 Leader building. Eugene Smith is district manager.

Purchasers, in All Fields (in Effect May 14)

OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A.....$1.20	*Grades B.....$1.15
‡Grades B (light crude):	
35-35.9.....$1.37	38-38.9.....$1.43
36-36.9..... 1.39	39-39.9..... 1.45
37-37.9..... 1.41	40 and above.... 1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Feb. 21, 1928)

‡Salt Creek below 29	$0.96
" " 29-29.9	1.01
" " 30-30.9	1.06
" " 31-31.9	1.11
" " 32-32.9	1.16
" " 33-33.9	1.19
" " 34-34.9	1.22
" " 35-35.9	1.25
" " 36-36.9	1.28
" " 37 and above	1.31
Elk Basin	1.33
Grass Creek light	1.33
Big Muddy	$1.25
Lance Creek	1.33
Rock Creek	1.25
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.33
‡Cat Creek, Mont.	1.33
Sunburst, Mont.	1.50
‡Hogback, N. Mex.	1.38
Artesia, N. Mex.	1.00

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill, Seal Beach, Huntington Beach	Inglewood, Torrance	Whittier, La Habra	Newhall, McKittrick, Kern River	Olinda-Brea, Canon, Richfield	Athens-Rosecrans-Dominguez	Montebello	Coyote Hills	Santa Fe Springs	Midway Sunset, Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
16-16.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
17-17.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
18-18.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
19-19.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
20-20.9	.85	.85	.85	....	.85	....	.85	.85	....	.77	.77	.76	.76	.85	.85
21-21.9	.86	.86	.85	....	.86	....	.85	.86	.85	.79	.79	.77	.77	.85	.85
22-22.9	.87	.87	.85	....	.87	....	.85	.87	.85	.81	.81	.78	.78	.85	.85
23-23.9	.88	.88	....	....	.88	....	.85	.88	.85	.83	.83	.79	.79	.85	.85
24-24.9	.89	.89	....	....	.89	$ .89	.85	.89	.85	.85	.85	.80	.80	.85	.85
25-25.9	.90	.90	....	....	.90	.90	.86	.90	.86	.87	.87	.81	.81	.86	.86
26-26.9	.92	.92	....	....	.92	.92	.87	.91	.87	.89	.89	.83	.82	.87	.87
27-27.9	.94	.94	....	....	.94	.94	.88	.92	.88	.91	.91	.85	.83	.88	.88
28-28.9	.96	.96	....	....	.96	.96	.89	.93	.89	.93	.93	.87	....	.89	.89
29-29.9	.98	....	....	....	.98	.98	.90	.94	.91	.96	.96	.89	....	.91	.91
30-30.9	1.00	....	....	....	1.00	1.00	.91	.95	.93	.99	.99	.91	....	.93	.93
31-31.9	1.03	....	....	....	....	1.03	....	....	.95	1.02	1.02	.93	....	....	.95
32-32.9	1.06	....	....	....	....	1.06	....	....	.97	1.05	1.05	.95	....	....	.97
33-33.9	....	....	....	....	....	1.09	....	....	.99	1.08	1.08	.97	....	....	.99
34-34.9	....	....	....	....	....	1.12	....	....	1.01	....	1.11	.99	....	....	1.01
35-35.9	....	....	....	....	....	1.15	....	....	1.03	....	....	1.01	....	....	1.03
36-36.9	....	....	....	....	....	1.18	....	....	1.06	....	....	....	....	....	1.06
37-37.9	....	....	....	....	....	1.21	....	....	1.09	....	....	....	....	....	1.09
38-38.9	....	....	....	....	....	1.24	....	....	1.12	....	....	....	....	....	1.12
39-39.9	....	....	....	....	....	1.27	....	....	1.15	....	....	....	....	....	1.15
40-40.9	....	....	....	....	....	1.30	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	....	....	1.33	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	....	....	1.36	....	....	....	....	....	....	....	....	....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders as effective the date shown.

Refiners' Supplies

	May 14	May 7
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, ...cwt.	$1.65	$1.65
Silicate of Soda 40 deg. tank cars, ...cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums, ... cwt.	$0.70-0.75	$0.70-0.75
Sal Soda wks.....	$0.90-1.10	$0.90-1.10
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton.....	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks	$18.50	$18.50
Sulfur, flowers of.....cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks.....lb.	3.50-5.00	3.50-5.00
Litharge, powdered, casks, cwt.	$8.50	$8.50

Compounders' Supplies

	May 14	May 7
Vegetable Oils		
Linseed carloads, spot.....lb.	10.30	10.20
Tanks, spot.....	9.50	9.40
Soya Bean, Tanks, coast, lb.	9.75	*9.50
Oleic Acid		
Distilled, tanks.....lb.	9.00	8.75
Distilled, bbls.....lb.	9.75	9.50
Saponified, tanks.....lb.	9.25	9.25
Saponified, bbls.....lb.	10.00	9.75
Lard Oils		
Prime Winter Strained,....lb.	16.25	16.00
Extra Winter Strained,....lb.	13.00	13.00
Extra,.....lb.	12.25	12.50
Extra No. 1.....lb.	12.00	12.00
No. 1.....lb.	11.50	11.75
No. 2.....lb.	11.00	11.25
Tallow oil.....lb.	11.50	11.50
Neatsfoot Oil		
Pure, bbls.....lb.	15.75	15.75
Extra, bbls.....lb.	12.25	12.25
No. 1, bbls.....lb.	11.75	12.00
Cold Pressed.....lb.	18.50	18.50
Fish Oils		
Menhaden Oil		
Light Pressed.....gal.	60	60–61
Light Pressed, tank cars, N. Y. .....gal.	52	52
White bleached.....gal.	65–66	65–66
Yellow bleached.....gal.	63–64	63–64
Whale, extra winter bleached, ...gal.	82	82
Naval Stores		
Steam distilled turpentine, N. Y. .....gal.	50	51
Steam distilled turpentine, Savannah..... gal.	45	46
Gum turpentine, N. Y....gal.	53	55
Gum turpentine, f.o.b. cars Savannah .....gal.	49	50.50
Wood Rosin F, N. Y.....bbl.	$7.30	$7.80
Wood Rosin F, Savn'h...bbl.	$6.50	$6.75
Gum Rosin B, N. Y.....bbl.	$7.50	$7.80
Gum Rosin B, f.o.b. cars Savannah .....bbl.	$6.75	$7.05
Rosin oil, pure.....gal.	48	48
Rosin oil, compounded...gal.	39	39
Pine Tar		
Kiln burnt,.....bbl	$12.50-14.00	*$13.00
Retort .....bbl	$13.50-15.50	$16.00
Alcohol		
Denatured, Formula 5, in bbls., per gal.....	50-54	50-54

*Nominal.

Gasoline Prices Still Climb In Chicago Resale Market

Staff Special
CHICAGO, May 12

GASOLINE prices continued to climb in the Chicago resale market this week. Sales were reported Monday at 7 to 7.25 cents but by Saturday no goods could be obtained under 7.25 cents. Even resale agents were having a hard time obtaining goods at less than this figure and in most cases they were paying the same prices as jobbers. One or two refiners were moving goods at 7.375 and 7.50 cents. Saturday the Sinclair Refining Co. advanced their quotations 0.25 cent on all grades of gasoline, making their price on U. S. Motor 7.75 cents.

Rumor was rife in the Chicago oil trade that next week would see an advance in the posted prices of the lighter grades of crude oil. Most refiners were unwilling to sell gasoline for deferred delivery longer than 10 days and several said five days was their limit. Two refiners reported turning down offers of 7.25 cents for U. S. Motor gasoline for export shipment. A buyer, who was in the market for some export goods, reported difficulty in getting goods in more than 10 or 15-car lots.

Demand for U. S. Motor gasoline was good all week. Most sellers reported doing an excellent business although they said their sales would not run as high as they did last week. One refiner representative said jobber demand was not so heavy as last week but sales at his company's service stations would run considerably higher.

Domestic demand for higher gravity gasolines was light. Most refiners reported good demand from exporters and several reported being sold up for the rest of May. Prices were approximately 0.125 cent higher as the week ended.

The 60-62, 437 e.p. grade moved at 7.25 cents flat up to Thursday and at 7.25 to 7.375 cents thereafter. Most sales of 60-62, 400 e.p. were at 7.375 to 7.50 cents the first half of the week and at 7.50 cents flat the latter half.

Little 64-66, 375 e.p. gasoline was obtainable at 7.625 cents Saturday and most sales were at 7.75 cents. The bulk of goods moved at 7.625 to 7.75 cents until Saturday. Some refiners were quoting as high as 8.25 cents on this grade.

Kerosene was in steady demand all week. Several sellers said jobbers in Wisconsin and Michigan were buying more actively now than they had all year. Prices continued their upward tendency and advances of approximately 0.25 cent were registered. The 41-43 w.w. kerosene sold at 5.125 to 5.25 cents Monday; at 5.125 to 5.375 cents Tuesday, and at 5.25 to 5.375 cents the rest of the week. Several sellers reported moving goods at 5.50 cents.

Distillate was quiet and unchanged in price. Most sales of 38-40 straw were made at 3 to 3.25 cents.

Gas oil was in steady demand. Prices of all grades were generally unchanged. The 32-36 ordinary dark grade moved at 2.625 cents flat after Monday when it was 2.625 to 2.75 cents. Gas oil of like gravity with a zero cold test continued to sell at 2.75 to 2.875 cents and the 32-36 straw zero goods moved at 2.875 to 3 cents.

Fuel oils were quiet. Several sellers reported that Oklahoma prices were slightly higher. Price changes were steady. The 28-30 fuel oil sold at $0.975 to $1.05 all week. Fuel of 24-26 gravity moved at $0.825 to $0.85 and 22-26 at $0.80 to $0.85. The 18-22 fuel continued to command a wide range of prices, selling mostly at $0.75 to $0.825. Smackover treated fuel remained unchanged at $0.875 to $0.90.

Some precipitation will probably occur during the early days of the week in Standard of Indiana territory. Otherwise the weather will be mostly fair next week. Temperatures will be near normal most of the week, falling a little below about the middle.

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Up Go Prices Again In Penn Market

CLEVELAND, May 12.—Price advances continued to supply the main feature of western Pennsylvania markets this week. Friday's and Saturday's business brought price advances in most commodities.

U. S. Motor gasoline went above 10 cents, being quoted 9.75 to 10.25 cents Saturday. A leading refiner advanced his price to 9.75 cents. Pittsburgh district was quoting 10.25 cents, as were some refiners upstate. Viscous neutral top prices advanced 0.50 cent. Cylinder stocks, bright stocks and wax went up also.

Refiners continued to give mixed reports on market activity. Some reported good demand, with present price of U. S. Motor for immediate shipment only and not over the rest of May. Others reported buyers had taken much goods for over May and were not active in the spot market.

More "sold out for the rest of the month" reports were given out on kerosene. Wax and bright stock demand continued active.

Penn Mex Fuel to Pay $1.25 a Share

PITTSBURGH, May 12.—Directors of Penn Mex Fuel Co. have declared a dividend of $1.25 a share payable May 31 to stock of May 19 record. The last dividend paid by this company was 50 cents a share May 21, 1921. More than 54 per cent of the Penn Mex stock is owned by the South Penn Oil Co.

Two directors of Penn Mex, who have just returned from Mexico, report that salt water intrusion has caused a 30 per cent curtailment in the company's production.

LOS ANGELES, May 4.—Capacity of the State Company's natural gasoline plant at Alamitos Heights is being doubled. The contract for the new work was awarded to the Engineering Research & Equipment Co. and the plant about June 1 will have a daily capacity of about 25,000 gallons. The company recently installed a 10-inch welded line from the plant five miles to the Long Beach oil field.

OIL STOCKS AND FINANCES

National Petroleum News

Richfield-Pan American Merger Opposed

LOS ANGELES, May 11.—Minority interests, holders of non-voting class B stock, in the Pan American Western Petroleum Co. are reported to be organizing to oppose the sale of the company to the Richfield Oil Co. However, it is expected the deal will be closed soon by James A. Talbot, president of Richfield, with the E. L. Doheny interests who own all of the Pan American voting stock.

The deal involves the purchase by Richfield of all the holdings of the Petroleum Securities Co. in Pan-American Western.

Petroleum Securities Co. which is owned entirely by the Doheny family will receive $30 a share for the 100,000 shares of class A voting stock in Pan-American Western and the same price for the 50,000 shares of class B stock held, these authorities state. The 100,000 shares of class A stock represent all of the A shares that are outstanding. The B stock which is non-voting is outstanding in the amount of 400,000 shares, 350,000 shares being held in the open market. An exchange of stock is being worked out to care for the balance of the outstanding B shares the basis for which is expected to be approximately two shares of Pan-American Western for one share of Richfield.

Through the purchase of the Pan-American Western Co. Richfield will acquire considerable valuable assets chief of which are Pan-American's 10-inch pipe line from the Midway field, the pipe line system from the Elk Hills field and the 70,000-barrel refinery at Watson, Calif.

Pan-American Western has a total of more than 260 miles of pipe lines serving the entire Midway and Elk Hills districts and parts of Southern California. The company owns or leases 26,000 acres in all important fields of California and an additional 1,000 acres in New Mexico. The company's refinery is on a tract of 360 acres at Watson. Three adsorption and compressor plants are also owned at Torrance, Elk Hills and Long Beach. Through the purchase Richfield will add approximately 20,000 barrels to its daily crude production.

BOSTON, May 11.—Fred E. Bergfors, Quincy Oil Co., Quincy, Mass., left May 10 on a week's fishing trip in Canada. Mr. Bergfors is convalescing from a mild attack of influenza.

Financial Notes

Pierce Oil Corp.—All retiring directors re-elected at annual meeting.

Tide Water-Associated Oil Co.—Lists 125,000 additional no par common shares on New York Stock Exchange, making total listing 1,237,078 shares.

Louisiana Oil Refining Corp.—All retiring directors re-elected at annual meeting.

Amerada Corp.—All retiring directors re-elected at annual meeting.

Atlantic Refining to Sell Superior Oil Stock

PHILADELPHIA, May 11.—Atlantic Refining Co. has contracted to sell to an unrevealed purchaser its stock holdings in the Superior Oil Corp.

Atlantic Refining's interest in Superior is held by the Atlantic Oil Producing Co., a wholly owned subsidiary, Atlantic's Superior holdings being 296,900 shares out of 1,105,208 shares outstanding. If sale of stock is consummated Atlantic's contract for purchase of oil from Superior will not be disturbed. This contract dated Jan. 24, 1920 covers 10 years.

Atlantic Refining issued this statement:

"Officials of Atlantic Refining Company on being approached regarding sale of holdings in Superior Oil Corp. stock acknowledged that there exists the contract to sell their entire holdings.

"They stated that the sale was consummated through Hansell & Co. of New York, declining, however, to state the terms of the contract.

"The Atlantic Refining Co. has owned stock in the Superior Oil Corp. since 1920."

Fuel Marketer Issues Stock

NEW YORK, May 12.—Sylvestre Oil Co., which does a fuel oil business in Westchester county, New York, has issued $50,000 8 per cent cumulative preferred stock in units of one share of preferred and one share of common stock at $117.50 to yield more than 7½ per cent. Quarterly dividends of 25 cents a share are being paid on the common stock.

Middle States Reports Fall in Earnings

NEW YORK, May 12.—Middle States Oil Corp. and affiliated companies in 1927 earned $967,096 after receivers' fees, counsel fees, claims, and miscellaneous expense including development cost but before depletion, depreciation, amortization, federal taxes and accrued but unpaid interest, receivers have reported. In 1926 earnings were $1,014,928. However, the operating income was $2,500,218 compared with $2,270,904 in 1926.

From the end of 1924 to the end of 1927, the report says, daily net production of the companies was increased from 4,024 barrels to 5,153 barrels. Dec. 31, 1926, net interest of Middle States Oil Corp. in production of companies, after eliminating all minority interests, was 2,709 barrels daily, while at Dec. 31, 1927 such net interest was 3,428 barrels daily.

During 1927, of 22 wells drilled, three were dry holes. Wells drilled or deepened by receivers total 94, of which all but 11 have been successful.

Bank balances of the group of companies have increased from $247,602 at date of commencement of receiverships to $2,313,275 as at Dec. 31, 1927, a net increase of $2,065,673. Report says that despite drastic cuts in oil prices in 1927, bank balances at the end of that year were increased to $2,313,275, against $2,152,676 at the end of 1926.

"The companies own leases on 11,911 acres of producing oil lands and on 44,469 non-producing acres, making a total of 56,380 acres, as on Dec. 31, 1927, with a daily net production of 5,153 barrels, as on Dec. 31, 1927, derived from 142 producing leases, on which are drilled 688 wells," the report continues. "Non-producing acreage was increased from 41,927 acres as on Dec. 31, 1926, to 44,469 acres on Dec. 31, 1927, despite lease expirations during the year 1927—a net increase of 2,542 acres.

"The receivers expect that their next report will be their final one."

Receivers are Joseph P. Tumulty and Joseph Glass.

NEW YORK, May 12.—Cities Service Co. reports its subsidiaries in the first quarter of 1928 produced 18 per cent more crude oil than in the first quarter of 1927. Because of the condition of the oil industry development is being confined to offset wells and lease requirements.

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended May 12 Sales	First	High	Low	Last	Change
37⅞	27⅜	38	27¼	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Apr. 30, 28	14,500	35⅞	35⅞	34	35⅜	+ ¼
82½	35⅛	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	10,500	80⅜	81½	75⅜	76⅜	— 2½
50¼	35	46½	37½	$56,000,000	$ 25	Associated Oil.	50cQ	Mar. 31, 28	360	44	44	40½	43½	— ½
131⅜	104	139⅛	95¾	50,000,000	100	Atlantic Refining.	$1Q	Mar. 15, 28	24,800	135	135⅛	130¼	132¼	— 2½
119	115½	118¼	116	20,000,000	100	do pfd.	$1.75Q	May 1, 28	200	117	117⅞	117	117⅞	+ ⅜
35½	20¾	26⅛	22⅛	28,725,675	25	Barndsdall Corp. A	.....	Feb. 6, 28	36,600	25⅛	25⅜	24½	25⅛	— ¼
32½	20½	27¼	22	799,775	25	do B.	.....	Feb. 6, 28	100	24½	24½	24½	24½	— 2⅜
32⅞	20	32½	24	51,524,150	25	California Petroleum	25cQ	Mar. 1, 28	3,300	31¾	31¾	30½	31½	— ½
96⅜	65	94⅞	71¼	20,785,400	100	General Asphalt.	.....	.....	41,500	90	90⅞	87½	89⅞	+ ⅜
144⅞	107¼	141½	114	6,792,200	100	do pfd.	$1.25Q	Mar. 1, 28	500	135	135¾	134¼	135	— 3½
175¾	60⅛	167	127	25,000,000	100	Houston Oil.	.....	.....	9,400	147¼	148⅝	139	148⅝	+ 2⅜
32¾	17⅜	31⅞	21¾	(sh) 500,000	N.P.	Independent Oil & Gas.	25cQ	May 7, 28	15,100	28⅞	29¼	27½	29	+ ¼
12⅛	7⅜	19½	9	$3,280,340	$10	Indian Refining.	.....	Dec. 15, 20	26,000	17⅜	18	16	17⅜	— ¼
12	7¼	18½	8½	4,550,110	10	do ctfs.	.....	.....	20,900	17⅛	17¾	15⅜	16⅞	+ ⅜
112	99	127	101	2,296,400	10	do pfd.	.....	Dec. 15, 21	500	126	126	125	125	— 2
37¾	20½	39⅛	27⅜	(sh) 3,992.122	N.P.	Lago Oil & Transport	75cQ	May 1, 28	8,000	36⅜	37⅜	35¾	36⅛	— ½
18⅜	10	19¾	9⅜	(sh) 1 237 078	N.P.	Louisiana Oil Refining.	.....	.....	43,000	17	17¾	15	17⅛	— ⅜
97	85¼	96	80	$4,000,000	$100	do pfd.	$1¾Q	May 15, 28	120	94	94	91	91	— 2¾
22¾	12	25½	12½	(sh) 330,000	N.P.	Maracaibo Oil.	.....	.....	6,600	20¾	22	18¾	21	+ ⅛
58½	31	44½	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	50,700	41½	42¼	39	40½	— ¾
320	200	360	255	$45,942.800	$100	Mexican Petroleum.	$3Q	Apr. 20, 28	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	12,000,000	100	do pfd.	$2Q	Apr. 20, 28	.....	.....	.....	.....	.....	.....
9¼	3	37¼	4⅝	(sh) 945,939	N.P.	Mexican Seaboard.	.....	Nov. 15, 24	164,000	32⅞	*37¼	30	36½	+ 4⅛
39⅛	25½	33¼	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum.	.....	Aug. 1, 27	17,600	31⅜	32	30½	31⅞	+ ⅜
105	97	115⅛	103¼	$6,718,000	$100	do pfd.	$1.75Q	Mar. 1, 28	100	115⅛	*115⅛	115⅛	115⅛	+ 6⅛
3¾	1⅜	7⅜	2¼	24,298.850	10	Middle States.	.....	July 1, 23	323,500	5	*7⅜	4⅞	6⅜	+ 1⅜
2¾	1½	5⅞	1½	5,501.370	10	do ctfs.	.....	.....	44,400	3½	*5⅞	3½	4½	+ 1
1⅞	1	2¼	1¼	(sh) 3,500.000	N.P.	Pacific Oil.	.....	.....	56,500	1⅞	1⅞	1⅝	1⅞	+ ⅛
65⅞	40⅛	53⅜	38¼	$48,807,400	$ 50	Pan American P. & T.	.....	Oct. 20, 27	5,100	52	52	46	49½	— 1⅞
66⅜	40¼	54⅝	37¾	121,097,900	50	do B.	.....	Oct. 20, 27	46,600	53	53½	49	50¾	— ½
37⅞	16¾	28⅜	18¼	(sh) 400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	20,900	25	25⅜	23⅛	25⅜	— ¼
18⅝	8	21⅜	11⅜	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	11,100	19¼	20⅞	17⅛	20⅞	+ 2⅞
83	54	98	70	$2,935,200	$100	do pfd.	.....	July 2, 23	3,500	90	*98	90	97	+ 3
60¼	36¼	44⅜	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum.	37½cQ	Apr. 2, 28	28,600	42¼	42½	40⅝	42	— ¼
1⅜	⅜	4¼	⅜	$29,622,925	$ 25	Pierce Oil Corp.	.....	.....	97,900	4	*4¼	3½	4	+ ¼
24	13½	30½	16½	15,000.000	100	do pfd.	.....	Feb. 1, 22	8,400	23	23¾	23	23⅛	— ⅛
5½	2½	6⅝	3½	(sh) 2,500.000	N.P.	Pierce Petroleum.	.....	.....	9,600	5⅜	5½	4⅞	5	+ ¼
33¾	16¾	26⅞	16	$37,450,850	$50	Producers & Refiners.	.....	Sept. 15, 23	5,400	24¾	24¾	23	24¼	+ ⅛
50	36⅜	46⅞	41	2,845,350	50	do pfd.	.....	May 1, 25	120	44	44	44	44	0
33⅛	25	27½	19	75,959,250	25	Pure Oil Co.	12½cQ	Mar. 1, 28	16,100	25¼	25⅜	24	24¾	— ⅜
115½	111⅜	115	108	13,000,000	100	do 8% pfd.	$2Q	Apr. 1, 28	490	113⅝	*115	113⅝	115	+ 1⅛
28⅛	25⅜	48⅞	24	$29,224,894	$25	Richfield Oil.	25cQ	May 1, 28	77,500	46⅝	*48⅞	43¾	48⅛	+ 2⅜
54½	44¼	55	44⅜	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	$1.343	Jan. 28, 28	16,000	53½	*55	52⅛	54⅜	+ 2¼
47⅞	41⅜	47	40⅝	(sh) 77,590	£2	Shell Transport & T.	97c	Jan. 23, 28	200	46½	46⅞	46½	46⅞	— ⅛
31¾	24⅜	31	23¼	(sh) 10.000.000	N.P.	Shell Union Oil.	35cQ	Mar. 31, 28	45,500	29⅝	30	28⅞	29½	— ⅛
26⅜	14¾	24¾	18⅛	$7,208.080	$ 10	Simms Petroleum.	.....	Apr. 1, 27	9,000	23	23½	22⅜	23¼	+ ⅝
22⅜	15	30¼	17⅜	(sh) 4,501.915	N.P.	Sinclair Consolidated.	.....	May 31, 24	160,200	28⅜	29⅞	27¾	29⅜	+ 1¼
104½	97	109½	102½	$16,604,600	$100	do pfd.	$2Q	May 15, 28	700	108	108¾	107¾	108¾	+ ¼
37⅜	24½	34	25	27.396,590	25	Skelly Oil Co.	50cQ	Mar. 15, 28	13,600	32	32⅞	30⅝	32⅜	+ ⅝
60¾	50⅜	63⅞	53	(sh) 13,016.434	N.P.	S. O. California.	62½cQ	Mar. 15, 28	29,000	62	62⅜	60½	61⅜	— ⅛
41⅜	35½	49	37⅜	$607,910.525	$ 25	S. O. New Jersey.	‡25cQ	Mar. 15, 28	192,700	45⅞	46	43⅞	45⅞	+ ⅛
34⅜	29⅜	41½	28¾	427,973.275	25	S. O. New York.	40cQ	Mar. 15, 28	364,200	38⅝	39	35¾	38¾	— ⅜
34⅞	30	49	31½	(sh) 1,206.073	N.P.	Sun Oil.	25cQ	Mar. 15, 28	7,200	49	*49	46	48	0
101⅜	99	109½	100	$5,000.000	$100	do pfd.	$1.50Q	Mar. 1, 28	200	108⅛	108⅛	108⅛	108⅛	— ⅞
6⅜	3⅛	7⅞	2⅜	(sh) 1,121,368	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	110,700	6⅝	*7⅞	6⅝	7	+ 1⅛
58	45	64⅜	50	$180.480.550	$ 25	The Texas Corp.	75cQ	Apr. 2, 28	98,400	63½	63⅝	61⅜	63½	0
18⅞	12	17½	12⅛	8,380.340	10	Texas Pacific Coal & Oil.	.....	Jan. 3, 28	21,000	16	16⅜	15	16	+ ¼
29⅛	19	26⅜	19⅜	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	Mar. 31, 28	4,400	26	26½	25⅝	26½	0
90⅞	85	94½	87	$20,705.200	$100	do 5½% pfd.	$1.25Q	May 15, 28	700	93	94	93	93	— 1½
19⅛	15¾	20⅝	14¾	(sh) 4,796,158	N.P.	Tide Water Associated.	.....	Aug. 1, 27	38,600	19⅝	20	18⅝	19	— ¾
90¾	85	90	82⅛	$72,745,900	$100	do pfd.	$1.50Q	Apr. 2, 28	2,700	89⅜	90	89¼	90	+ ½
10⅜	3¾	10⅛	7¼	(sh) 3,742,029	N.P.	Transcontinental Oil.	.....	.....	80,900	9	9¼	8½	8⅞	+ ⅛
56½	39⅜	57	42¾	$40,791.225	$ 25	Union Oil of California.	50cQ	May 10, 28	15,400	53½	54	52⅝	53¼	— ¼
127½	94	128⅛	119½	30,844.000	100	Union Tank Car Co.	$1.25Q	Mar. 1, 28	700	127	*128⅛	125½	125½	— 1
34½	24½	33⅜	26	(sh) 310.956	N.P.	Warner Quinlan.	50cQ	Apr. 1, 28	106,500	31⅞	33⅜	30½	32⅞	+ 1⅜
27½	20	26	20⅛	(sh) 490.000	N.P.	White Eagle Oil & Refining.	25cQ	Apr. 20, 28	6,400	25	25½	24	25½	+ ½

•New High †New Low ‡Also extras s-Stock Total Sales 2,574,990

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended May 11 Sales	First	High	Low	Last	Change
9⅞	6⅞	9⅛	7½	$ 10	Arkansas Nat. Gas.	7,637	8⅜	9½	8¼	9½	+ 1¼
98¾	80⅞	97¾	90¾	100	Columbia Gas.	.....	.....	.....	.....	.....	.....
107⅜	100	108	108	100	do pfd.	.....	.....	.....	.....	.....	.....
15	7⅜	10	7	10	Devonian Oil.	300	10	10	9½	9½	— ⅜
.....	.....	15	9¾	10	Dixie Gas & Util.	20	12¼	12¼	12¼	12¼	— 2
.....	.....	95	85	100	do pfd.	80	85	86	†85	86	— 3
117½	115	116	115	100	Duquesne Light pfd	.....	.....	.....	.....	.....	.....
.....	.....	85	80½	100	Fayette County Gas.	.....	.....	.....	.....	.....	.....
12¾	6	22	12	N.P.	Houston Gulf Gas.	150	18	18	18	18	— 1
59¼	37¾	58	48⅝	$ 25	Lone Star Gas.	12,855	53	54	51	51⅞	— ⅞
3⅝	3	4	3¼	5	Pittsburgh Oil & Gas	50	3¼	3¼	3¼	3¼	— ¼
8	5½	7¼	6⅜	10	Salt Creek Cons.	.....	.....	.....	.....	.....	.....
26½	17	22	16¾	10	Tidal Osage.	100	22	*22	22	22	+ ⅜
43	33	33¼	30½	N.P.	Waverly Oil Wks. A	.....	.....	.....	.....	.....	.....

Oil Company Earnings

First Quarter	1927-1928	1927
Tide Water Associated.	$2,045,588	$1,415,359
Tide Water Oil.	709,482	1,618,211
Tidal Osage Oil.	276,264	2,109,365
Superior Oil.	*274,414	324,382
Transcontinental Oil.	*70,646	215,780
Annual	**1927**	**1926**
Texon Oil & Land.	534,498	.....

*Loss

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended May 11 Sales	First	High	Low	Last	Change
....	....	2	1¾	....	Arkansas Gas Corp.	6,066	2	3¼	2	3	+ 1
....	....	9	7½	....	do pfd.	.....	.....	.....	.....	.....	.....
95	88	132	132	25	Gulf Oil.	1,000	132	132	132	132	.....
....	....	115	115	....	Houston Gulf Gas pfd.	.....	.....	.....	.....	.....	.....
10¾	5½	9	5½	25	Leonard Oil & Dev.	10,200	8	*9	8	8¾	+ ½
2.70	.30	1.00	.50	10	Omar Oil & Gas.	.....	.....	.....	.....	.....	.....
2¾	1¾	....	....	5	Pittsburgh Oil Dev	.....	.....	.....	.....	.....	.....
31	19	22	16¾	5	Plymouth Oil.	2,295	21¾	22	20½	20½	— 1½
6	5	4½	4½	5	States Oil.	.....	.....	.....	.....	.....	.....
3¾	1½	4½	2¼	1	Texon Oil & Land	4,550	4½	4½	4¼	4¼	— ¼
23¾	18	18	15	10	Tidal Osage Non vot	.....	.....	.....	.....	.....	.....

•New High †New Low xEx Dividend

Oil Dividends

	Amount	Payable	Stock of Record
Atlantic Refg. q.	$1	June 15	May 21
California Pet. q.	25c	July 2	June 1
Imperial Oil q.	25c	June 1	May 15
do extra.	12½c	June 1	May 15
Northern P. L. s.a.	$3	July 2	June 15
Ohio Oil q.	50c	June 15	May 15
Penn-Mex. Fuel Co.	$1.25	May 31	May 19
Royal Dutch final.	14%	.....	.....
Shell T. & T. final	15%	.....	.....
S. O. Indiana q.	62½c	June 15	May 16
do extra.	25c	June 15	May 16
S. O. Nebraska.	62c	June 20	May 26
S. O. New York q.	40c	June 15	May 19
Texas Corp. q.	75c	July 1	June 1

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended May 11 Sales	First	High	Low	Last	Change
21⅝	17⅞	22⅛	18½	£ 4,126,460	£ 1	Anglo-American Oil	60⅓c	May 31, 27	7,500	20	20	19½	19⅞	+ ⅛
21½	17⅝	20½	17⅞	.....	£ 1	do cts. non-voting	.....	.....	100	19	19	19	19	— ⅛
3¾	¾	5	1⅛	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	1,800	3⅜	4	3	3⅛	+ ⅜
6½	2½	9¾	3¼	$ 10,000,000	$ 50	do pfd	.....	.....	100	6½	6½	6½	6½	0
69	50	56	49	1,000,000	25	Borne Scrymser	‡$1S.A.	Apr. 16, 28	100	51	51¼	51	51¼	— 2½
60	45	76	58	10,000,000	50	Buckeye Pipe Line	$1Q	Mar. 15, 28	300	72	72	69½	69½	— 3½
126	76½	161	117¼	3,000,000	25	Chesebrough Mfg.	$1Q	Mar. 30, 28	100	156½	156½	154½	154½	+ 1½
22⅜	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	8,500	18⅞	19¼	18¼	18⅞	+ ⅛
137	89	105	88	3,000,000	100	Cumberland Pipe Line	$2Q	Mar. 15, 28	150	104	104½	104	104½	+ ⅜
68½	47	88	64½	5,000,000	100	Eureka Pipe Line	$1Q	May 1, 28	.....	.....	.....	.....	.....	.....
13½	3½	11	5	16,000,000	100	Galena Signal Oil	.. ..	June 30, 25	.....	.....	.....	.....	.....	.....
59¼	23	39	27	4,000,000	100	do new pfd	.....	June 30, 26	10	33⅛	33⅛	33⅛	33⅛	— 2⅛
60⅛	35½	48	35	2,000,000	100	do old pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
68½	54	83	60	73,117,577	25	Humble Oil & Refining	‡30cQ	Apr. 1, 28	26,400	80¼	*83	76⅞	81½	+ ⅜
182	123¾	222	176½	20,000,000	100	Illinois Pipe Line	$6S.A	Dec. 15, 27	2,800	210	*222	210	220	+10
64¾	37¾	67¼	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	‡25cQ	Mar. 1, 28	21,400	68½	72	67¾	70½	+ 2½
74½	61	89½	74⅞	$5,000,000	$ 50	Indiana Pipe Line	$1Q	May 15, 28	200	87	87	87	87	0
39	28¼	43⅞	35	(sh)17,123,444	N P	International Petroleum	25c	Mar. 15, 28	16,800	41⅝	*43⅞	41⅛	43⅞	+ 1¾
24	13¼	32	20½	$6,363,500	12.50	National Transit Co.	25cQ	Mar. 15, 28	3,500	30	30	29¾	30	0
44½	31¼	59⅛	37½	5,000,000	100	New York Transit	.....	July 15, 26	760	58	*59	57¾	57¾	+ ¼
100	70	125	94	4,000,000	100	Northern Pipe Line	‡$3S.A.	Jan. 1, 28	.....	.....	.....	.....	.....	.....
67⅜	52	67	58	60,000,000	25	Ohio Oil Co.	‡50cQ	Mar. 15, 28	13,700	65½	67	63⅝	67	— 2¼
19	12	84	29	10,000,000	25	Penn Mex. Fuel	.....	May 21, 25	14,500	60	65	40¼	56	— 4
190	132	223	184	81,000,000	100	Prairie Pipe Line	$2.50Q	Apr. 30, 28	1,600	215	216	213	215	0
55½	45⅝	56	47⅝	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	17,900	53½	53¾	52¼	53	0
201½	175½	186	167	4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 27	100	179	179	179	179	— 7
27¼	15½	34	21	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	1,200	33	*34	33	34	+ 1
41¼	35	53	36¾	20,00.000	25	South Penn Oil	50cQ	Mar. 31, 28	7,500	50	50	43	50	— 2½
83	55½	100	70	3,500.000	100	South West Pa. Pipe Lines	‡$1Q	Apr. 2, 28	230	99	*100	96	97	+ 1
81½	64⅝	83⅝	70⅓	228,415.463	25	S. O. Indiana	‡62½cQ	Mar. 15, 28	28,100	80¾	81½	78⅝	81½	+ 1½
20⅞	14⅜	27¾	15	8,000.000	25	S. O. Kansas	.....	June 16, 24	2,400	24	24	22⅝	23	— ⅜
130	111½	136½	122¼	17,012.559	25	S. O. Kentucky	$1Q	Mar. 31, 28	4,500	132¾	132⅞	130⅝	132⅞	+ ⅝
49½	40	45⅞	39¼	4,559.850	25	S. O. Nebraska	63cQ	Mar. 20, 28	600	44¾	44¾	43½	43½	0
87½	72	79½	71	14,000.000	25	S. O. Ohio	62½cQ	Apr 2, 28	850	78½	78½	76½	77½	0
22	117¼	125	117	7,000,000	100	do pfd	$1.75Q	Mar. 1, 28	.....	.....	.....	.....	.....	.....
21	14½	26	16	10,734,000	25	Swan Finch Co.	.....	Nov 1, 19	100	18¾	19	18¾	19	0
.....	.....	87⅛	75	124,941,600	25	Vacuum Oil	75cQ	May 31, 28	25,600	87	*87⅛	82⅝	85¾	— 1¼

*New high †New low xEx dividend ‡Also extras.

New York Curb Bonds

Week Ending May 11

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	106	104½	106	0
Cities Serv. 5s '66	97⅞	97⅝	97¾	0
Cities Serv. 6s '66	104⅛	104	104⅛	— ⅛
Cities Serv. G 5½s '42	96⅝	96½	96½	0
Cont. Oil 5¼s '37	97¾	97	97¼	0
Emp. O. & R. 5½s '42	95¼	95	95	— ⅛
Galena Oil 7s '30	95	94	95	0
Gulf Oil 5s '37	102¼	101½	102	0
Gulf Oil 5s '47	102⅛	101¾	102⅛	0
Independent Oil 6s '39	104	103½	103⅝	— ⅜
Richfield Oil 6s '41	140½	128⅝	140½	+ 6
Sun Oil 5½s '39	102⅛	102	102	0
Trans Con't. Oil 7s '30	108⅜	106	106	—1¾
Valvoline Oil 7s '37	105	105	105	— ¼
Warner Quinlan 6s '42	107½	105	107½	+2¾

New York Bonds

Week Ending May 11

	High	Low	Last	Ch'ge
Atlantic Refg. deb. 5s	103	102¼	102¾	+ ½
Barnsdall Corp. 6s	105⅞	104¾	104¾	—1
Barnsdall Corp. 6s ex-war	93⅝	93	93	0
Cal. Pet. 5s	101⅜	101	101	0
Cal. Pet. 5½s	103½	102¾	102¾	— ⅛
General Asphalt 6s	113	112⅞	113	+ ¼
General Petroleum 5s	102	101⅝	101¼	+ ⅛
Humble Oil & Refg. 5½s	102½	102	102¼	— ¼
Humble Oil 5s	101	100¾	100¾	— ¼
Mid-Cont. Pet. 6½s	106	105½	105½	0
Pan Amer. P & T 7s	104½	104½	104½	+ ¾
Pan Amer. P & T 6s	105	104½	104½	0
Pan Amer. P & T 6s	96½	95½	95½	— ¾
Phillips Pet. 5¼s	94¾	93¾	94¼	— ¼
Pro. & Refg. 8s ex-war	110¾	110½	110¾	+ ⅝
Pure Oil 5½s	100¼	100	100	— ⅛
Shell Union 5s	98⅞	98½	98½	— ⅛
Simms Pet. cvt. 6s	105¾	105½	105½	—1
Sinclair Con. Oil 7s	103½	102⅞	103½	+ ½
Sinclair Con. Oil 6½s	101	100¼	100¼	— ⅞
Sinclair Con. Oil 6s D	99	98¾	98⅞	— ⅛
Sinclair Con. Crude 5½s	99⅛	98¾	99	+ ¼
Sinclair Pipeline 5s	96⅛	95¼	95	+ ½
Skelly Oil 5½s	94¾	94⅝	94¾	+ ¼
S. O. N. Y. 4½s	98¼	97¾	98	0
S. O. N. J. deb. 5s	103½	103¼	103¼	0
Superior Oil 7s	104⅝	103	104⅝	+ ½
Union Oil of Calif. 6s A	112	112	112	0
Union Oil of Calif 1st 5s A	102	102	102	0
Union Oil of Calif 5s C	99¾	99¾	99¾	— ⅛
White Eagle 5½s	98	98	98	0

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended May 11 Sales	First	High	Low	Last	Change
2⅛	.55	1½	.75	$ 5	Amer. Con. Oilfields	45,000	.95	1.00	.92	1.00	+ .07
7½	2¾	6⅝	3⅛	N.P.	Amer. Maracaibo	34,000	6½	6½	5¼	5¾	— ¾
2¾	1	4	2¼	$ 10	Argo Oil	300	3¼	3⅛	2¾	2¾	— ¼
9¾	6¾	9⅞	7⅜	10	Arkansas Nat. Gas	200	8⅜	9⅜	8⅜	9⅜	+ 1⅜
20½	15½	.....	.....	N.P.	Beacon Oil	.....	.....	.....	.....	.....	.....
40	20½	40½	32¾	N.P.	British American	500	41	*40½	40	40½	+ ⅝
28¼	15½	23⅞	18½	25c	Carib Syndicate(new)	4,500	22⅝	22⅞	20⅜	20½	— 1⅝
26	15⅛	.....	.....	.....	do ctfs. of deposit	.....	.....	.....	.....	.....	.....
58¾	40¼	68	54	$ 20	Cities Service	65,000	63½	*68	63½	67¼	+ 4¼
95⅜	87	103½	94½	100	do pfd	1,900	102¾	*103½	102⅝	103½	+ ½
8⅞	7⅜	9⅝	8⅞	10	do pfd. B	900	9⅝	9⅝	9⅝	9⅝	0
29¼	22½	30½	28¾	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅞	1⅛	2¼	1⅛	1	Colombia Syndicate	8,000	2	2	1⅛	1⅛	— ¼
9¾	6⅜	8⅞	6½	10	Consolidated Royal	.....	.....	.....	.....	.....	.....
14⅞	9½	17	10	N.P.	Creole Syndicate	160,000	16	*17	15¾	17	+ 1
3	.50	1½	.76	N.P.	Crown Central	3,800	1½	1¾	1½	1¾	+ ⅜
12	4	27½	8½	N.P.	Darby Petroleum	34,500	22½	*27½	22⅜	27½	+ 5
11½	4	13½	7⅞	....	do trust ctfs	.....	.....	.....	.....	.....	.....
2½	.74	1⅞	1	N.P.	Derby Oil & Refining	200	1¾	1¾	1¾	1¾	+ ½
16¾	4	10	7½	N.P.	do pfd	.....	.....	.....	.....	.....	.....
3¾	1	2	1¼	N.P.	Gibson Oil	28,700	1⅞	1⅞	1½	1¾	0
2	.40	.53	.15	N.P.	Gilliland ctfs	.....	.....	.....	.....	.....	.....
118	86¼	134	101⅛	$ 25	Gulf Oil Corp	16,500	128	*134	126½	133½	+ 7½
2½	.80	2¾	1½	10	Intercontinent Pet	8,800	2	2	1⅝	1⅞	— ⅛
2¼	1¼	3	1¼	N.P.	Kirby Petroleum	400	1⅝	1⅝	1½	1½	— ⅛
10⅞	5⅛	9⅜	5½	N.P.	Leonard Oil & Dev	83,800	7¾	*9⅜	7¼	8⅝	+ 1
27½	20	32⅜	20	N.P.	Lion Oil & Refg	3,500	32	32	27⅛	28⅝	— 6⅞
59¾	37	57	49	$ 25	Lone Star Gas	14,800	53¾	53¾	51	52	— 1
2⅞	.80	1⅞	.91	1	Magdalena Synd	29,500	1¾	1¾	1¾	1¾	0
21½	20⅞	22⅞	22½	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	37⅝	N.P.	Margay Oil	200	40	40	40	40	— 4⅞
3	1½	40½	40½	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	4¼	N.P.	Mexico-Ohio Oil	1,800	6	6½	5½	6½	+ ½
1½	1	1½	.90	$ 1	Mountain & Gulf	5,600	92	92	90	91	— 1
29¼	22¾	28⅝	23	10	Mountain Producers	13,100	23¼	24¼	t23	24¼	+ 1⅛
5⅞	4⅝	5⅝	4¾	5	New Bradford	2,200	5¼	5¼	5	5⅛	0
6¼	4	5½	4	10	New England Fuel	500	4¼	4¼	4¼	4¼	— ¼
16	9¼	11⅜	8⅛	1	New Mex. & Ariz	600	9⅛	10	9	10	+ ⅜
13⅞	9	15½	11½	25	New York Oil	.....	.....	.....	.....	.....	.....
12¾	9½	13	10¾	N.P.	North Cent. Texas	400	12⅝	13	12⅝	13	+ ½
23⅞	21¼	...	...	...	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2⅝	N.P.	Pandem	2,600	3¾	4	3½	3½	— ⅜
12⅛	7	15¼	8½	N.P.	Panapec Oil	20,000	14	14	13⅛	13¾	— ¼
9	7⅜	11⅜	10⅝	$ 25	Paragon Refg	.....	.....	.....	.....	.....	.....
.37	.25	9	4	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13½	5⅜	7¾	5⅜	$ 10	Pennok Oil	600	6	6	6	6	0
...	...	4⅛	3⅛	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24⅜	7	14½	9	25	Red Bank Oil	300	10	10	9⅝	9⅝	— 3⅜
15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	7,600	8⅞	8⅞	8½	8½	— ¾
28⅜	15	31½	22	$ 25	Richfield Oil pfd	600	24¼	24½	24¼	24½	+ ½
7	4½	9⅞	4⅝	N.P.	Ryan Consolidated	1,000	8	8¼	7⅜	8	— ¼
8	5¼	7¼	6¼	$ 10	Salt Creek Cons	700	6½	6½	t6¼	6¼	0
35½	27¼	35	27¾	10	Salt Creek Prod	12,400	28½	29	t27¾	29	+ ⅜
7	1¼	3½	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
26½	17	22⅞	13	10	Tidal Osage	8,400	22⅜	22⅜	20⅛	20½	— 1½
23¾	15	21¼	13⅛	10	do non-voting	2,900	20⅝	21	20¼	20¼	— ⅞
92	63½	87	82½	100	Transcontinental pfd	300	85	85	85	85	0
23¼	7	47	18	10	Venezuela-Mexico	100	47	*47	47	47	+ 4
7⅜	4¼	6½	4⅞	5	Venezuelan Petrol	10,900	6	*6½	5⅞	6¼	+ ⅜
32⅝	19½	25	18⅞	N.P.	Wilcox Oil & Gas	600	21⅝	21⅝	21½	21½	— ⅜
8	4¾	8¼	5⅜	$ 1	Woodley Petroleum	1,300	8¼	8¼	8	8	— ⅛
6	1¾	5	2⅛	25	Y Oil & Gas (new)	300	4⅛	4⅝	4⅛	4¼	0

*New High †New Low xEx Dividend

THE OIL INDUSTRY EXCHANGE

Positions Wanted

REFINERY SUPERINTENDENT now employed superintending complete Pennsylvania plant. Eighteen years experience, thoroughly acquainted with modern equipment, desires new connection for betterment. Can produce maximum high grade production. Address Box 76.

SERVICE STATION SUPERVISOR desires position vicinity Cleveland, Ohio. Sixteen years experience including invoice clerk, chemist, crude oil buyer and service station work. At present operating own station. Address Box 83.

POSITION WANTED AS SALES MANAGER OR ASSISTANT SALES MANAGER with progressive oil company by young man, 37 years of age, with following experience: Formerly in charge of sales for large refinery. Oil and grease jobbing and brokerage experience. Free to go any place. Can furnish best of references. Address Box 85.

Situations Open

MECHANICAL ENGINEER WANTED with number of years refining experience and successful record. Must be capable of handling construction work and assuming responsibility. Address Box 89.

LIMITED NEW ENGLAND TERRITORY OPEN TO SALESMEN calling on service stations and garages. Profit-making nationally advertised equipment specialties. Strictly commission basis. In first reply specify what you are now selling and territory covered. Address Box 87.

MANAGER INDUSTRIAL LUBRICATING OIL SALES WANTED

Refiner-marketer desires experienced man to assume complete charge and expand Industrial Lubricating Department. Executive experience in this field and a successful record required.

Address Box 93.

CHEMICAL ENGINEER WANTED with extensive refining experience, to take charge of department in 3,500 barrel skimming and cracking plant. Address Box 88.

POSITION OPEN LEADING TO ASSISTANT REFINERY SUPERINTENDENT. Must have engineer's training, successful practical experience and clean record. Address Box 90.

MECHANICAL SUPERINTENDENT WANTED

Small but complete refinery located on the Great Lakes requires the services of a graduate mechanical engineer who has had three or four years experience in refinery work and is capable of supervising all refinery construction and maintenance work. Please give age, education, experience, present salary, references and any other special qualifications. Communications will be held strictly confidential.

Address Box 92

Business Opportunities

WE ARE INTERESTED IN LEASING FILLING STATIONS with railroad sidings located in West Virginia, Virginia, Maryland or Southern Pennsylvania. We will equip with our own storage and pumps. Please state details as to rent, size, exact location, railroad and length of lease available. Address Box 86.

For Sale

TWO BULK STATIONS FOR SALE

in Eastern Pennsylvania. Own side track, gravity feed, Erie Meter Pumps. Excellent location doing good business.

Address Box 94

THREE BULK STATIONS FOR SALE. One excellent service station site, gallonage over half million, well located in Middle West, serving 23 curb pumps. Large lube and grease business included. Address Box 91.

NEW GAS STATION FOR SALE

Ready for business May 15th. Located in Alpena, Mich., on the corner of Chisholm St., First Ave. and Washington Ave., five corners. US-23 and M-32 run past the station. Best location in Alpena. Artesian well on property will be great attraction to tourists. For information address

Securities Funding Corporation
Cadillac. Mich.

Miscellaneous

WHAT IT COSTS

"For Sale," "Wanted to Buy," "Help Wanted," "Business Opportunities,"

"Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00.

"Positions Wanted"—5 cents a word Minimum charge $1.00.

Advertisements set in special type or with border—$4.00 per column inch.

Copy must reach us not later than Friday preceding date of issue.

All advertisements carried on this page are payable in advance.

Advertisers having box numbers should be addressed in care of National Petroleum News, 1213 W. 3rd St., Cleveland, Ohio, unless otherwise specified.

L. V. SURTEES
Assistant manager of the Waterloo, Iowa division of the Mid-Continent Petroleum Corp.

Surtees of Mid-Continent Wins Promotion

CHICAGO, May 12.—L. V. Surtees, special sales representative of Mid-Continent Petroleum Corp., who has worked out of the Chicago office of Cosden Sales Corp. for several years, has been assigned to the company's division office in Waterloo, Ia. He is assistant manager of the Waterloo division and left Chicago May 12.

Mr. Surtees is the dean of a new school of salesmen in the oil business. It was about three years ago that he combined his work, traveling sales job, with platform speaking. Later slide projection and finally motion pictures were added to the merchandising program.

Surtees' plan was to educate the tank wagon drivers and filling station men, who come in actual contact with the consumer, in the correct uses of oil and the basic principles of automotive lubrication. As a refinery representative he took his story to the employes of his jobber customers in talks and in pictures. Several companies are following the same plan.

B. S. Reid Returns from Abroad

CHICAGO, May 12.—Bryan S. Reid, head of the Inter Ocean Sales Corp., Riverside, Ill., accompanied by Mrs. Reid, arrived in Chicago May 1 after an absence of more than two months abroad. Most of the time was spent in France and Italy.

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